APRIL | 1958

products finishing

How to Plate Bumpers Page 26

An Expert Talks on Barrel Finishing Page 40

Small Magnets Speed Dip Painting Page 46

New Developments Page 76

Table of Contents Page 5

Finishes on metal products

LEA SATIN FINISH
...in modern lamp fashions by LIGHTOLIER
it's a finish that's
functional, fashionable, economical
As modern as tomorrow . . . this lamp from Lightolier's Fleetwood Collection created by Gerald Thurston, engineered by Lightolier, and the trim satin finished with Lea Compound. Lightolier says this LEA Satin Chrome Finish was chosen because it's modern, it harmonizes with other finishes and it's extremely durable. And we might add that it's a finish that's economical to produce.
Why not go modern on your finishing line? Why not try a Lea Satin Finish on your product? It will look terrific, it will have real consumer appeal and it will reduce your finishing costs.
Write or call us for an answer to your finishing questions.
LEA
The Hallmark of Quality Products
THE LEA MANUFACTURING CO.
16 CHERRY AVE., WATERBURY 20, CONN.

For more data circle 301 on Postpaid Card

Do you need better ways to strip paint?

When tough finishes resist your present stripping methods, you may need help on some of these problems:

1. How to strip oil-base paints . . . synthetic enamels . . . alkali-resistant plastics . . . resin-base paints . . . japans . . . wrinkle finishes . . . nitrocellulose lacquers . . . alkyds . . . phenolics . . . ureas.
2. How to strip zinc chromate primers without etching aluminum.
3. How to strip paint from vertical surfaces and undersurfaces where thin-bodied strippers run off without doing their work.
4. How to strip metal parts that are too large to be soaked in tanks.
5. How to strip paint, pigment residues, phosphate coatings and rust in one operation.
6. How to strip paint from rejects, conveyor chains, racks and hooks in continuous operation.

Oakite has more than a dozen fine stripping materials for these and similar jobs.

FREE For information on problems 1, 2, 3 and 4 ask for a copy of "How to strip paint". For more on problems 5 and 6 ask for "Here's the best shortcut in the field of organic finishing". Write to Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

OAKITE
SPECIALIZED INDUSTRIAL CLEANING
MATERIALS · METHODS · SERVICE
SCIENCE

Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada

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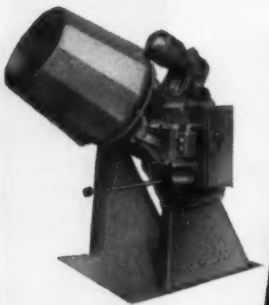
Electratilt Model With Polygonal Barrel

the new BAIRD

POLIACTION

barrel finishing machines



Hydratilt Model

designed for today's production line requirements

This new line of machines, available in two basic sizes, has been designed to meet an increasing demand for equipment of production line quality that can be economically adapted to a wide range of barrel finishing requirements.

Exceptionally "clean-limbed" in design, with all working parts and electrical equipment efficiently protected, these machines are at the same time compact, easy to keep clean, and easy to service. Modern finger-tip control and well-engineered drive and tilting mechanisms result in unusually smooth, fast and convenient operation that can mean important time and labor savings as well as close-limit control of product quality.

Equipment can be adapted readily to a wide range of barrel types, finishing methods and production needs.

Baird is one of the oldest and largest makers of barrel finishing equipment for production line service. Our long experience suggests that, when installing new equipment of this type, you first...

ask BAIRD about it.

With these important new features...

"Clean-limbed" for easy housekeeping • Time-saving finger-tip control • Electratilt power tilting or Hydratilt manual-hydraulic • Vari-sheave or vari-speed motor drive • Easy accessibility for adjustment or service

BAIRD about it

THE BAIRD MACHINE COMPANY • STRATFORD, CONN.

Write Department PF.

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MICCROSOL

...FOR CORROSION INSURANCE!

for

DUCTS

RACKS

TANKS

HE SURE IS RELAXED SINCE WE COATED OUR EQUIPMENT WITH **MICCROSOL**

WHY NOT? **MICCROSOL**'S THE BEST "CORROSION-INSURANCE" WE CAN BUY!

Long the leading coating for plating racks, Miccrosol has kept pace with corrosion-resistance requirements for other industrial applications.

Famous for its toughness, resilience, abrasion resistance, and flexibility; Miccrosol also has unequalled chemical resistance. Easy to apply and easy to repair; it's available in either *dip* or *spray* formulas.

For the best "corrosion insurance" you can buy . . . use Miccrosol!

MICHIGAN CHROME *and Chemical Company*

8615 GRINNELL AVENUE • DETROIT 13, MICHIGAN

Developed and manufactured by experienced platers and coaters

FOR TANKS, DUCTS, AND OTHER EQUIPMENT

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How to make metal stripping an exact science: What metal do you want to strip? There are eight metal strippers in the Enthone "ENSTRIP" series, which, in most cases, will do the specialized job thoroughly, quickly, economically. If one of these standard strippers won't precisely cover your requirements, there are special Enthone research developments available. Write us about your particular needs or problems. Include a sample of your product if possible. We'll be glad to recommend the best methods to follow. Enthone, Inc., 442 Elm Street, New Haven 11, Conn.

ENTHONE

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58-1

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products finishing

Vol. 22 No. 7 April, 1958

FEATURES IN THIS ISSUE:

25 The Time Is Now! • *Editorial*

26 Automobile Bumper Plating • *By Gerard H. Poll, Jr., Associate Editor*

34 Finishing Gasoline Pumps: Conveyorized Electrostatic Spray Boosts Production • *By L. D. McClanahan*

37 Epoxy Coating Speeds Camera Production

40 Possibilities of Barrel Finishing Processes • *By C. J. Glasrud*

46 Dip Painting: Mighty Magnets Transport Tools

50 That BIG Step from Supervisor to Executive • *By Alfred M. Cooper*

68 Electroplating: Who Needs It? • *By Dr. Joseph B. Kushner*

6 Advertising Representatives

DEPARTMENTS:

64 Finishing Clinic

76 New Equipment, Materials, Processes

129 Product Literature

134 Classified Advertising

142 News of the Industry

158 Meetings of Interest to Finishers

159 The Finishing Touch

160 April Advertisers' Index

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contents

Published monthly with two issues in March and copyrighted (1958) by Gardner Publications, Inc., 431 Main St., Cincinnati, Ohio. Printed in U.S.A. Accepted as controlled circulation publication at Cincinnati, Ohio.

For more data on advertisement on opposite page, circle 307 on Postpaid Card

SURFACE FILTRATION IS NOT ENOUGH!

DEPTH FILTRATION

provides many successive filtrations in ONE operation with
CLARITY
EFFICIENCY
LOW COST

Models equipped with corrosive resistant alloys and materials for every electroplating and industrial solution from pH 0 to pH 14. Removes particles down to one micron in size.

Sethco FILTER PUMP UNITS

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Sethco Mfg. Co. 2292 BABYLON TURNPIKE, MERRICK, L. I., NEW YORK

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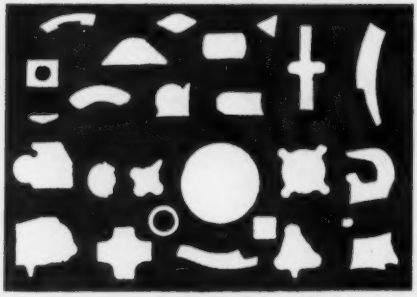

Pre-Cut Masks Speed Finishing

Brady Pre-Cut Masks are self-sticking — go on fast and accurately. Protect from finishing to inspection. Hundreds of shapes and sizes in stock, for paint spraying, baking, tumbling, etc. Specials made to order. Fast delivery. Distributors in 150 cities.

Write for free samples and Bulletin 160-C.

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products finishing

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★ ★ ★

Circulation over 21,000— largest in the finishing field

GRIND POLISH BUFF DEBURR

with a

Hammond ROTARY AUTOMATIC

Model "K" Hammond Automatic Finishing Machines are made in 34", 46" and 62" table sizes. These models are either continuous or for indexing at 150 to 1700 indexes per hour. Head styles include floating, non-floating with 3 H.P. to 20 H.P. range. Also available are attachments for converting heads from buffing to abrasive belt polishing. The Hammond Model "K" will speed up your grinding, polishing, buffing, brushing and de-burring operations. Send us samples and learn how much you can speed them up.

SEND SAMPLES

and we'll show you how much you can speed production and cut costs.

Hammond Machinery Builders INC

1622 DOUGLAS AVENUE KALAMAZOO, MICHIGAN

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"THIS STEVENS BARREL PLATING MACHINE IS SAVING EATON THOUSANDS OF DOLLARS...

...and it's completely automatic!" says R. J. Munsey

R. J. Munsey
Division Industrial Engineer
Reliance Division
Eaton Mfg. Co.
Massillon, Ohio

A Stevens Automatic Barrel Plating Machine, with *one* operator is cadmium plating 1,750 pounds of lockwashers, Springtites, and Keps an hour for Eaton. It has also . . .

- INCREASED PRODUCTION 270%
- REDUCED REJECTS TO LESS THAN 1%
- REDUCED REQUIRED FLOOR SPACE BY 400 SQ. FT.

These savings, both in supplies and labor, mean volume production for Eaton Manufacturing Co. They've discovered, as have an increasing number of progressive companies, that Stevens equipment assures maximum production and superior quality.

Lower costs, consistent quality and assured production are only a *few* of the reasons why Stevens Automatic Barrel Plating Machines are the leaders in their field. For more details, contact your local Stevens Sales Representative today! Find out why more and more metal finishers are looking to Stevens for production savings.

Remember—When you go Automatic...go Stevens!

frederic b. **STEVENS,** inc.

DETROIT 16, MICH.

BUFFALO CHICAGO DETROIT CLEVELAND
DAYTON NEW HAVEN SPRINGFIELD (OHIO)

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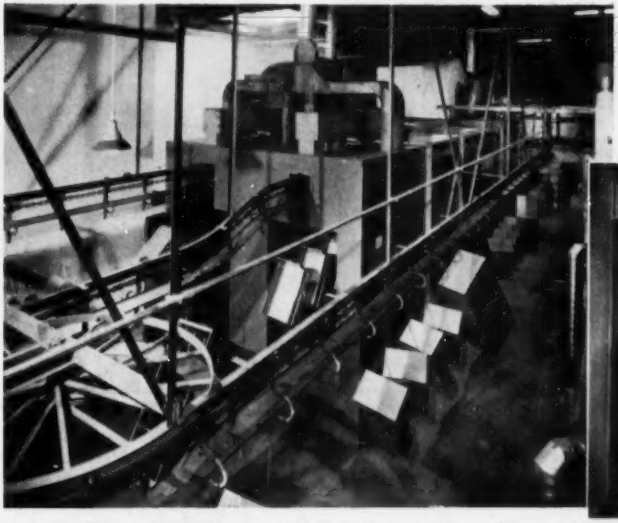
THIS DESPATCH FINISHING SYSTEM PROVIDES MAXIMUM PRODUCTION with MINIMUM MANPOWER



Overhead conveyor (at left) carries component parts through washing, painting, drying processes.

Spray booth (below) where each part is painted from opposite sides.

Semi Automatic Operation Speeds Work Flow for Office Furniture Manufacturer

Fifty thousand pounds a day production with only nine employes—that's the potential for the DESPATCH Finishing System recently installed in the new 37,000-square-foot Art Steel Company, Inc., plant at Los Angeles, Calif.

Consistent surface texture, even color, with a finish that is neither soft nor brittle and well bonded to the metal, are basic requirements in the manufacture of high quality steel office furniture. Less than one hour needed to complete finishing cycle, here. Installation occupies only one-sixth of plant area.

Whether you sell to industry or the consumer, let DESPATCH's experience in evaluating, recommending and creating completely engineered finishing systems help solve *your* particular problems.

WRITE TODAY FOR BULLETIN 51C

16 colorful pages on modern ways to achieve better finishes, faster production and smoother metal products handling . . . at lower cost.

DESPATCH OVEN COMPANY

619 S. E. Eighth St., Minneapolis 14, Minn.

Sales and Service in All 26 Principal Cities

PIONEERS IN ENGINEERING FINISHING SYSTEMS FOR INDUSTRY

For more data circle 312 on Postpaid Card

EGYPTIAN "COMPOSITE BAKE"* METAL PRIMERS can double your oven capacity too!

*"Composite Bake" . . . the simultaneous baking of the Egyptian System of Metal Primers and Top Coat in one pass thru the oven.

Recently one of America's largest Manufacturers of Air Conditioning Equipment† found himself wrestling with the finishing room bug-a-boo that eventually plagues every volume product manufacturer . . . overtaxed oven facilities – resulting in non-productive finishing room man-hours.

At the suggestion of his Egyptian Finishes Specialist he momentarily laid aside the obvious solution . . . additional baking units – and made a trial run, switching to Egyptian "Composite Bake" Metal Primers.

Here's how the tally sheet read: (1)-Oven capacity doubled. (2)– Non-productive man-hours practically eliminated. (3)– No additional baking equipment required.

In addition to these production advantages, Egyptian "Composite Bake" Metal Primers brought these highly desirable finishing characteristics:

†*Name upon request.*

- **EXCELLENT ADHESION to practically any metal surface.**
- **WILL TAKE MOST ANY TOP COAT—Lacquer or Synthetic Enamel.**
- **SMOOTH FILM and excellent "Enamel-Holdout"**
- **GOOD RUST RESISTANCE—Corrosion Inhibiting Pigments.**
- **SUITABLE FOR EXTERIOR EXPOSURES.**

Listening to the complete Egyptian "Composite Bake" Story could point out the way to cut costs in your finishing room too. Invite an Egyptian Industrial Finishes Specialist to call on you TODAY, or write for detailed information. No obligation of course.

EGYPTIAN *Industrial Finishes*

The EGYPTIAN LACQUER MANUFACTURING COMPANY

BOX 444, NEWARK 1, NEW JERSEY

EXECUTIVE OFFICES, ROCKEFELLER CENTER, N. Y. • Plants: South Kearny, N. J.—Lafayette, Ind.

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In 36 Hours DuBOIS Will Solve YOUR Stripping Problem At The

DuBOIS PAINT STRIPPING CLINIC

Your paint stripping problem can be made easy by following these suggestions:

1. Send us several work pieces to be stripped or test panels specially prepared for stripping.

2. Tag each part with name, date and essential problem details including requirements: hot or cold methods, tanks available, etc.

3. Write separately, outlining problem, to whom report should go.

36 hours after receipt of the work, a report will be on the way back to you—by telephone if necessary. No obligation or charge.

The DuBOIS Co., Inc. Cincinnati E. Rutherford, N. J. Los Angeles Dallas

Paint Stripping Clinic, Cincinnati 3, Ohio

REPRESENTATIVES AND WAREHOUSES COAST-TO-COAST

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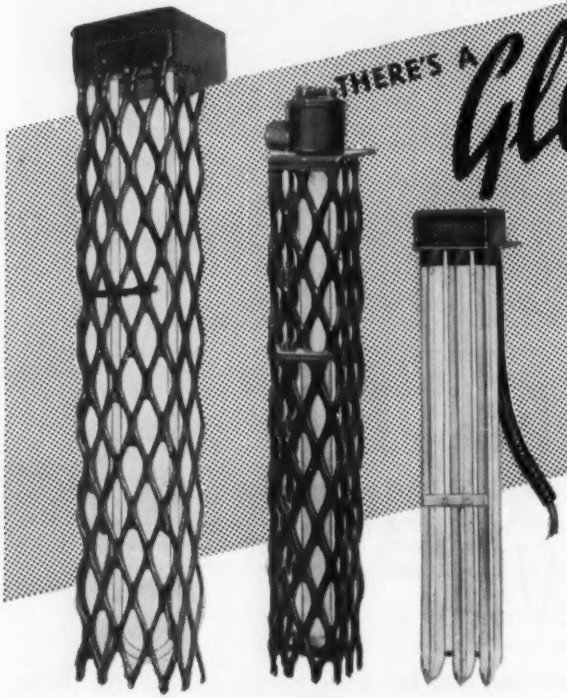
The Leading Name in Immersion Heating



THERE'S A **Glo-QUARTZ*** **IMMERSION HEATER** for YOUR EVERY **HEATING REQUIREMENT**

All 3 Types

- INSTANT HEATING
- SHORT-PROOF
- AVAILABLE IN ALL VOLTAGES—WATTAGES, one and three phase
- STOCKED FOR IMMEDIATE SHIPMENT

TYPE "U"

PATENT PENDING World's first successful U-tube **ACID** Heater—Guaranteed to outperform and outlast all other quartz heaters.

TYPE "GN"

Pat. No. 2,740,881 Standard straight tube Quartz **ACID** Heater—Vapor-proof junction box; replaceable heating element.

TYPE "MB"

"Multi-Blade", Metal-sheathed **ALKALI** Heater—Portable, burn-out proof, easy mounting, long life.

WRITE FOR BULLETIN

If you're looking for

ACCURACY—EFFICIENCY—LONG LIFE—and ECONOMY

...you'll get it with Glo-QUARTZ!

Available from your Electroplating Distributor!

Glo-QUARTZ ELECTRIC HEATER CO., INC.

*Trademark Reg. U.S. Pat. Off. WILLOUGHBY, OHIO Phone: Willoughby 2-5521

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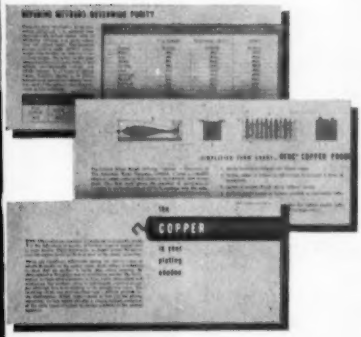
you need the facts about

the COPPER in your plating anodes . . .



Here's a problem that perplexes many copper electroplaters:

Which anode is best for my plating operation?

Latest booklet in the OFHC® Plating Publications Series can help you decide. Fact-packed, "The Copper in Your Plating Anodes" (Pub. CA-15) explains the relationship between copper purity and plating results. We are sure you'll find it useful.

Ask today for your free copy: Just contact your OFHC Copper Anode distributor or any of our sales offices directly.

NEW!

Illustrated technical report available for asking!

AMERICAN METAL CLIMAX, INC.

61 Broadway, New York 6, New York

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OFHC® Copper Anodes are made only by American Metal Climax, Inc.

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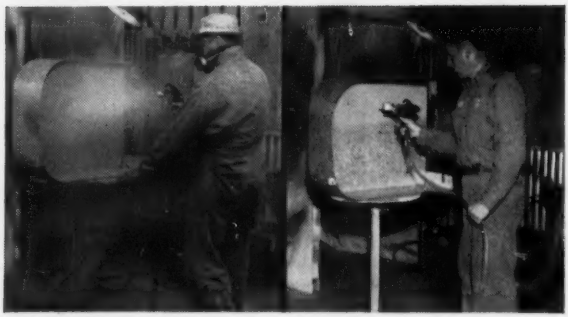
airless* SPRAY COATING

*Spray Painting Without Air



Spray Painting With Air | Airless

This new spray painting process (without air) will minimize your over-spray problems, reduce health and fire hazards, cut maintenance and clean-up costs, save paint, time and labor as well as reduce your auxiliary painting equipment requirements.

Over and above these advantages... a Better Finished Product is the final result. See it at the show.

YOU'LL SEE IT AT THE SHOW!

in operation at BOOTH 602 Southwestern Metal Exposition, Dallas, Texas May 12-16, 1958

Write for Airless Spray Painting brochure.

NORDSON CORPORATION

FORMERLY BEDE PRODUCTS CORPORATION

THE BEST IN SPRAY COATING EQUIPMENT

AMHERST, OHIO YUKON 8-4473

In Canada: 864 Pape Ave., Toronto, Ontario

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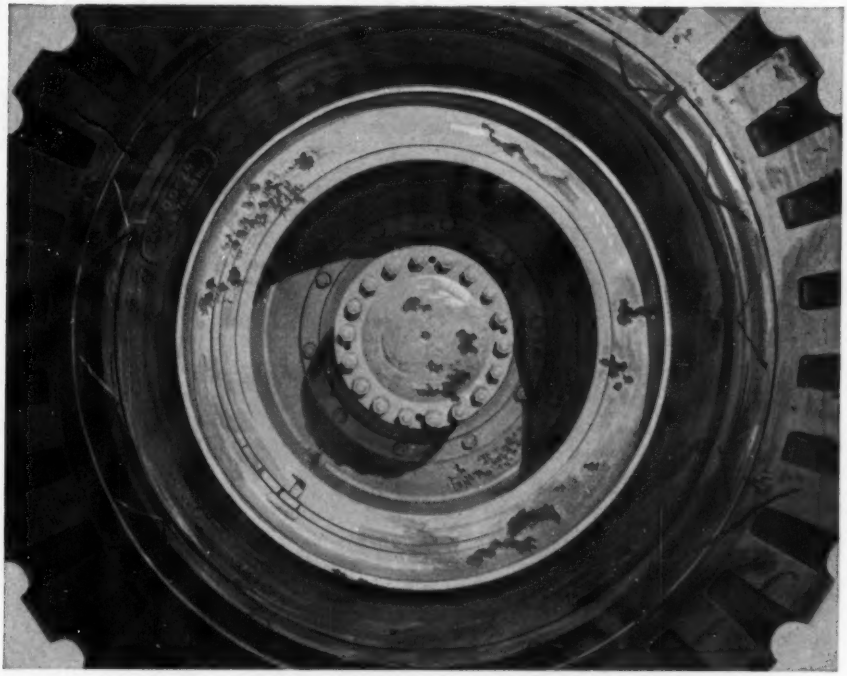
BETTER PROTECTION for metal surfaces



Isophthalic based paints last longer under severest conditions—*resistant to checking, peeling, chipping*

Now you can add years of protection to metal surfaces thanks to the adhesive properties of Isophthalic based paints. Better film to metal bond means improved performance with fewer prime coats required—saves time, cuts painting costs.

Surface coatings made with Isophthalic have better abrasion resistance than ordinary paints, hold up longer under severe weather conditions, provide improved gloss retention. Whether you buy exterior or interior paints, finishes for furniture or tough coatings for machinery it will pay you to find out about Isophthalic based paint.

ASK YOUR PAINT SUPPLIER about finishes, made from this new material—*Isophthalic.*

ORONITE CHEMICAL COMPANY

A SUBSIDIARY OF CALIFORNIA CHEMICAL COMPANY

EXECUTIVE OFFICES • 200 Bush Street, San Francisco 20, California

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EUROPEAN OFFICE • 36, Avenue William-Favre, Geneva, Switzerland

4981

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NOW! cut the cost of

under every

there's a LIQUID ENVELOPE Strippable Spraybooth Coating designed for you!

That's right! LIQUID ENVELOPE offers a choice of *four spraybooth formulations* planned to fit all operating conditions! One for general application . . . *plus* three to use where unique features are needed!

All four cut clean-up time to minutes, minimize non-productive down-time, improve booth illumination and firesafety!

Choose the one that meets your needs, then send the coupon below for a 5-gallon test-sample at the drum-lot price.

FOR GENERAL DUTY:	CHOOSE ONE OF THESE WHEN SPECIA	
#49-5396-2 **H. D. ECONOMY** The oldest and most widely-used spraybooth coating. Fast and economical. Dry film will not burn. Choose this for use under all normal operating conditions.	#15-10 **EMULSION** Water-based coating to use where health and fire laws prohibit solvent systems. Solution will not burn. Non-toxic. Mild odor. Non-webbing.	#49-03 **F.X.** This unusual formulation gives you absolute firesafety in a solvent system. It cannot burn either wet or dry.

BETTER FINISHES AND COATINGS, INC.

268 Doremus Avenue, Newark 5, New Jersey

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ooth maintenance-anywhere!

perating condition

NDITIONS EXIST:

#49-36

LO-VIS

Low-viscosity formulation for low-pressure equipment and where webbing is a serious objection. Non-webbing. Dry film will not burn.

PAINTS · PLASTICS · CHEMICALS BFC

BETTER FINISHES & COATINGS INC.

268 Doremus Avenue, Newark 5, New Jersey

Gentlemen:

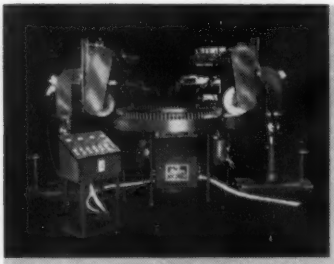
I am interested in LIQUID ENVELOPE Strippable Spraybooth Coating #_____

Please ship 5-gallon test-sample and bill me at the drum-lot price.

NAME_____

COMPANY_____

ADDRESS_____



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engineering
and **development**
can help you.

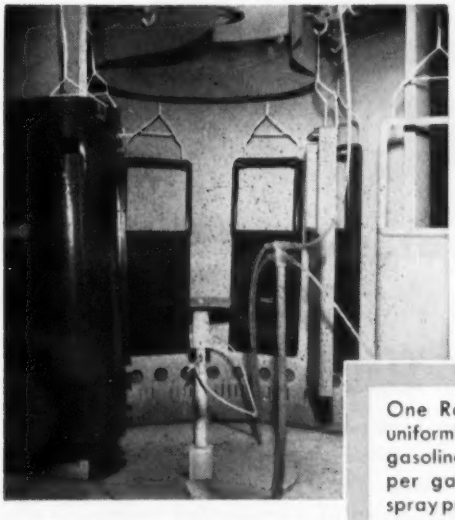
If your problem is finishing to a rigid jet aircraft part specification or finishing with the speed and economy needed for a simple bobby pin, lipstick or cosmetic case a PACKER-MATIC automatic machine can meet your demand for quality, efficiency and economy. Send blueprints or sample. Our engineers will recommend the PACKER-MATIC to speed production and cut costs.

packer-matic

THE PACKER MACHINE COMPANY
MERIDEN, CONN.

PIONEER MANUFACTURERS OF AUTOMATIC POLISHING AND BUFFING MACHINES
For more data circle 320 on Postpaid Card

PRODUCTION MORE THAN TRIPLED . . .
PAINT MILEAGE INCREASED 75% WITH



Ransburg NO. 2 PROCESS

One Ransburg reciprocating disk uniformly coats 7 complete sets of gasoline pump housings and parts per gallon of paint. Former hand spray produced only 4 sets per gallon.

● Bowser, Inc. Fort Wayne Division is continuously on the lookout for improved manufacturing methods in the production of their quality line of gasoline pumps.

That's why they modernized their finishing department . . . installed a conveyor . . . new oven . . . and replaced hand spray with one RANSBURG No. 2 PROCESS reciprocating disk unit.

RESULTS? Paint mileage increased 75% with less labor. With hand spray, they painted enough pump housings and parts for 4 pumps per gallon of paint. Now, with *Electrostatic*, they're painting 7 complete pump sets per gallon.

Where Bowser formerly needed two shifts in finishing, one shift now handles even greater production. With hand spray and limited oven facilities, they used to turn out 15 sets per hour. Now, they can paint 55 sets an hour, either prime or finish. Color changes are made quickly and easily with Ransburg equipment, and because of its efficiency in operation, maintenance cost in the paint area is cut 50%.

No Reason Why You Can't Do It, Too!

Whatever your product, if it's painted, we'd like to tell you more about the worthwhile savings and advantages which can be yours with RANSBURG ELECTROSTATIC PAINTING PROCESSES. Write for our No. 2 Process brochure which cites numerous examples of electrostatic spray painting on a wide variety of products.

Ransburg ELECTRO-COATING CORP.

Indianapolis 7, Indiana

RANSBURG

For more data circle 321 on Postpaid Card

Introducing Allied's

IRILAC™ #1000

New, Clear Protective Coating for All Metals . . . As Safe and Easy to Handle as Water!

New Method of protection incorporates corrosion inhibitors in a water-soluble polymer base. Dries to an extremely thin, tough, durable coating—clear in color. Does not chemically affect base metal or any post treatments. Used as a protective treatment alone or to enhance value of post treatments.

Allied's new Irilac #1000 is a concentrated solution of a water-soluble polymer with built-in complex corrosion inhibiting materials. It was developed to answer the needs of the metalworking industry for a non-conversion process that will provide corrosion resistance and resistance to fingerprinting and abrasion on base metals, and electrochemically or chemically finished surfaces—without changing the appearance of the metallic surface.

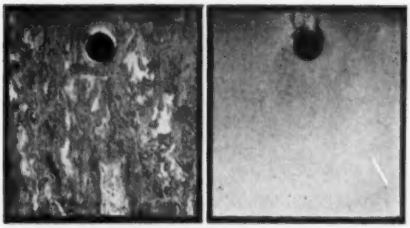
There are no hazards involved—Irilac is non-fuming, non-toxic, and requires no special fire prevention measures.

THE PROCESS

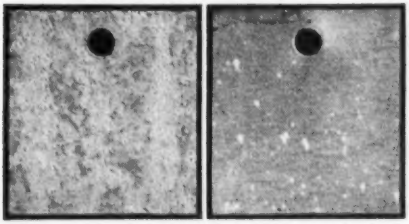
Irilac #1000 is diluted with water to provide a simple one-pass working solution. It is then applied by dip, brush or spray and forms a coating that quickly *bonds* to the metal surface without reacting with the surface.

THE PROPERTIES

The resulting coating is clear, transparent, thin yet durable. It has excellent water resistant properties, and can be rubbed, handled and subjected to rough treatment. The surface to which Irilac has been applied is not altered—in fact, the transparent coating brings full tone to colored surfaces and clarity to iridescent surfaces. The water-thin physical characteristic of the solution means that the coating provides protection in recessed areas that are difficult, if not impossible, to protect with other methods.



STEEL PANELS: bare (left) and coated with Irilac (right) after 8-hour salt spray.



ALUMINUM PANELS: bare (left) and coated with Irilac (right) after 168-hour salt spray.

WHERE IRILAC CAN BE USED

Irilac #1000 can be applied to *any* metal—wet or dry—treated or untreated. All metals can be processed in *one* operation in the same solution. It can be applied in conjunction with any process—over Iridite, anodized, phosphated surfaces, black oxide, etc. Surfaces treated with Irilac provide a good base for paint.

APPLICATION ADVANTAGES

No other process or material available for the protection of metals offers all the application advantages found in new Irilac #1000.

1. It can be applied to *any* clean metal simply by dip, brush or spray. No special equipment is required.
2. Saves time — just apply and dry — no reaction time required.
3. No hazards involved—no exhaust or special fire protection equipment is required. Irilac is non-fuming and non-toxic.
4. Saves space. Presents no disposal problem. Low in first and final costs.

Because of its versatility and complete safety, Irilac has unlimited uses. For example, it will protect aluminum furniture, brass hardware and fixtures, steel parts of all types, zinc castings, etc. In fact, any base metal or plated surface, or those treated with electrolytic or chemical post-treatments, can be improved or enhanced with Irilac.

IRILAC #1000 MAY BE THE ANSWER TO YOUR PROTECTION PROBLEM **Our development staff will be glad to work with you to determine the significant benefits Irilac can offer you. Simply send us some parts and let us show you what Irilac can do. No obligation, of course.**

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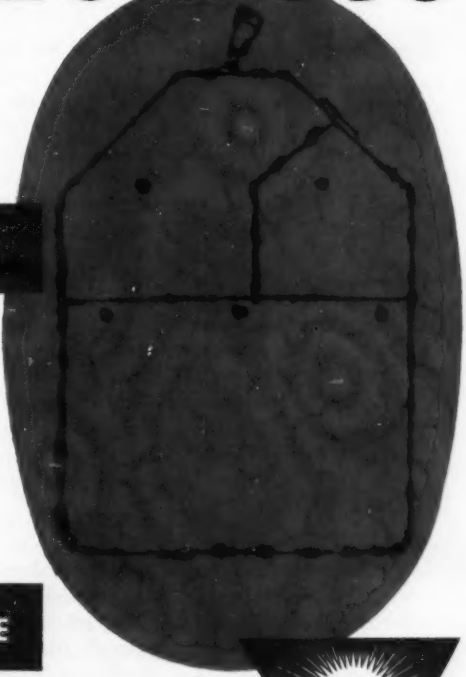

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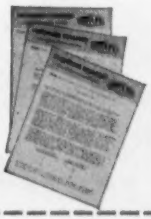

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editorial

April, 1958

The Time Is Now!

Never has it been more true that "you can't afford to stand still." It's either make progress or slide backward . . . the choice is yours.

Progress in the finishing industry usually takes the form of improved operations. And while any time is a good time to make improvements, this is the time that improvements are imperative. Why? For two reasons: 1) business is highly competitive right now, and therefore the contract will go to the producer who has the most efficient operation—the man who can trim his costs and still produce top quality; 2) all signs point to a booming tomorrow, when the orders will be stacked up and there won't be time for checks and investigations, comparative cost analyses, test production runs.

Improvements can be major ones, or they can be minor changes in solutions, materials, and methods.

For example, you can minimize your chromium solution spray losses by using addition agents or plastic floats on the solution surface. Some platers exhaust their plating fumes through wet-wash fume removal chambers, then return the washed air to the room. This practice saves on plant heating costs.

The finishing industry was mechanized before the word "automation" was coined. However, not all shops are using a fully conveyorized setup for cleaning, painting, baking or plating to speed production and cut costs.

An important improvement to flow coating is an automatic control that keeps paint at the proper viscosity. Finishers who operate flow coating systems will recognize the importance of consistent viscosity, temperature, conveyor speed, etc.

Is your power equipment operating at maximum efficiency? Have you checked into the possibility of using liquid buffing compound? Have you considered the possibilities of barrel finishing, barrel plating, or bulk handling methods?

Are you applying paint, enamel, lacquer and plastisols in the most satisfactory and economical manner? Paint application methods are discussed in a booklet entitled, "A Survey of Paint Application Methods," described on Page 45.

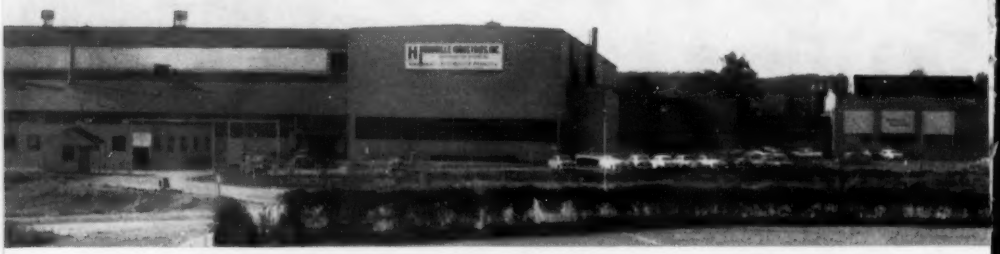
Finishing equipment engineers will be glad to discuss with you the many ways to apply paint, and help you select the correct one for your plant.

In today's tough competition, finishers cannot afford to take the attitude of the old farmer who said, "I am farming only half as good as I know how." Finishers must take advantage of every new and improved method, material, machine, and process if they wish to stay in business.

Ezra A. Blount

—EDITOR

Automobile Bumper Plating



Bumpers get bigger and bigger . . . so do the problems in plating them. Here's how Houdaille Industries' Huntington, West Virginia, plant does the job . . .

By GERARD H. POLL, JR.
Associate Editor

Automobile makers demand the best a plater can give when it comes to bumpers. They not only want bumpers that look like your shaving mirror—the bumpers must also have the corrosion resistance to withstand the rigors of winter service on the salt-drenched streets of a city like Detroit. And the designer, having never heard of "throwing power" puts in curves that platers a few years ago saw only in nightmares. To produce today's bumper and do it at competitive prices requires a lot of know-how, strict quality control, the best proprietary materials, and constant searching for more efficient methods.

One plant that has spent a lot of time and effort in developing a process for plating bumpers that will meet the tough specifications is the Huntington Division of Houdaille Industries, Inc.

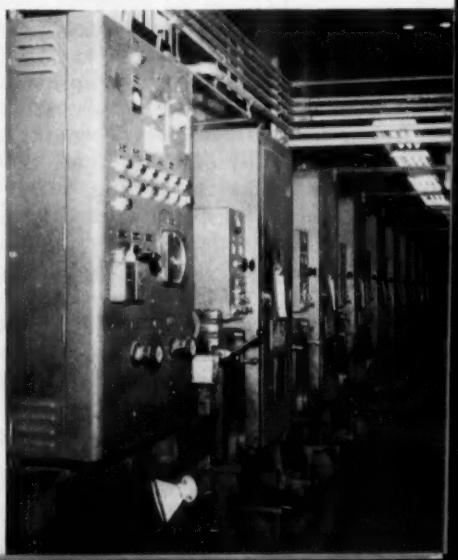


Fig. 2—One of two lines of Hill-Acme flat polishing machines, which are used for smoothing surface of the steel prior to forming.

←*Fig. 1—Houdaille Industries' bumper manufacturing plant in Huntington, West Virginia.*

Houdaille's Huntington plant (Fig. 1) occupies 154,000 square feet of floor space exclusive of dock and office space. It operates 24 hours a day, producing nothing except bumpers and bumper hangers for Edsel, Lincoln, Chrysler, Imperial and other Chrysler automobiles.

Established in 1946, this plant has pioneered in some of the important developments in the process of making bumpers. The world's first flat-polishing line for sheet steel used in bumpers was installed in this plant.

How Bumpers Are Made

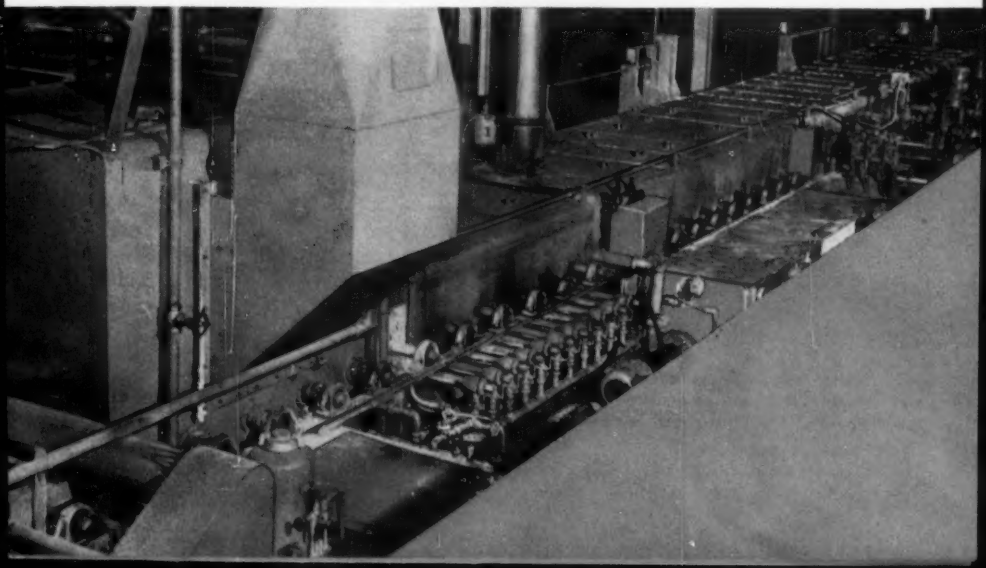
In general, the following steps are performed to make a completed bumper: 1) inspect the sheet steel for imperfections, forming qualities, hardness and other properties; 2) pickle to remove scale; 3) flat polish steel on abrasive belt machines to remove surface imperfections and prepare it for plating; 4) clean, phosphatize, and coat with a soap film; 5) form the steel; 6) perform snagging operations to remove sharp corners and burrs; 7) spot polish to remove roughness caused by dies or handling; 8) copper plate, nickel plate, then buff; 9) chromium plate; 10) inspect; 11) pack for shipment.

The entire process takes about three hours of actual processing time, including transport time. More than a mile of overhead conveyor is used to carry the parts through the entire process.

Pickling

Thickness of the steel sheets used varies from 0.065 to 0.110 inch. To remove mill scale from the hot-rolled sheets before flat polishing, the sheets are pickled in a sulfuric acid solution. Basically, this bath is 5 per cent sulfuric acid. A pickling

Fig. 3—Cleaning-phosphatizing-soap coating machine built and installed by Cincinnati Cleaning & Finishing Machinery Co. cleans polished steel sheets, applies phosphate coating, dries, and sprays sheets with a soap-type drawing compound as they travel through.



inhibitor is added to reduce the acid's attack upon the base metal.

Pickling is speeded by the addition of 5 oz./gal. of rock salt (sodium chloride) to the solution.

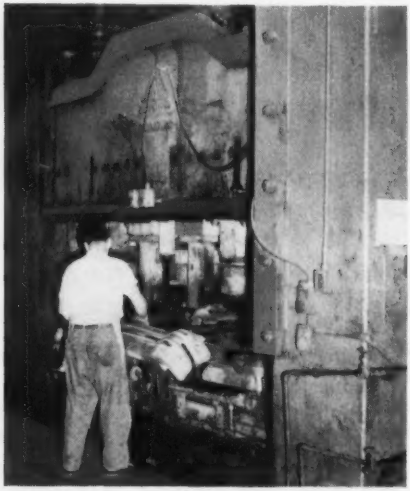


Fig. 4—Two bumpers at a time are formed by this huge Clearing forming press. The care taken in this operation saves polishing time.

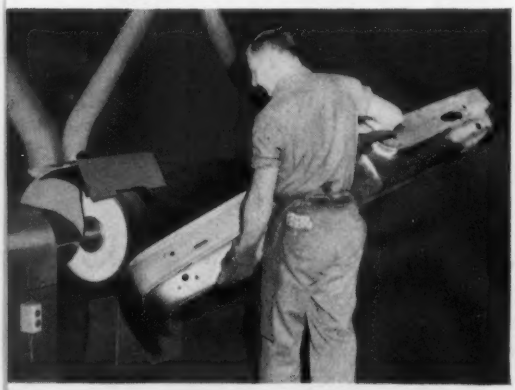


Fig. 5—"PG" wheel is used to polish formed steel bumpers as required (and if required) after they come out of forming presses.

This results in the formation of some hydrochloric acid, which dissolves the scale more readily than sulfuric acid. Salt is added only when the bath is made up. Too much salt would result in pitting the base metal. Sulfuric acid is added according to the amount of iron sulfate that builds up in the tank. Concentration of the acid is checked daily. The bath temperature is 180 deg. F. Pickling time depends upon the amount of scale to be removed — from two to ten minutes. Compressed air agitation keeps the acid in motion, speeds pickling, and keeps the pickling solution composition uniform.

Steel sheets are rinsed in clear water and then dipped in a hot soda ash solution to neutralize the remaining acid. The soda ash also helps to prevent rust.

Sheets pass through a level-roll machine to "break" the steel and remove stretcher strain. Bumpers are blanked out before or after the flat polishing operation, according to the shape of the piece being made.

Flat Polishing

Houdaille Industries tries to eliminate hand polishing as much as possible while still maintaining a bright surface. One way to do this is to flat-polish the sheets on abrasive belt machines, before forming. This plant has two abrasive-belt flat polishing lines, each with 12 Hill-Acme machines (Fig. 2). Sheets are fed into the first machine by a magnetic loader, which picks up one sheet at a time from a stack.

Belts used on these machines become finer in grain as the sheet moves down the line, so that the

surface of the sheet finally becomes as smooth as desired.

The first two machines have 80-grit resin-bonded aluminum oxide grain belts. The next two or three machines are equipped with 100-grit aluminum oxide belts. The next machine has a 150-grit silicon carbide belt. Used belts are employed on the remaining machines. Belts are supplied by Minnesota Mining, Behr-Manning, Carborundum, Mid-West Abrasive and Michigan Abrasive. The last two heads on each line are lubricated with a surface active agent and Dow Grinding Fluid. Belts are normally either 18 or 24 inches wide.

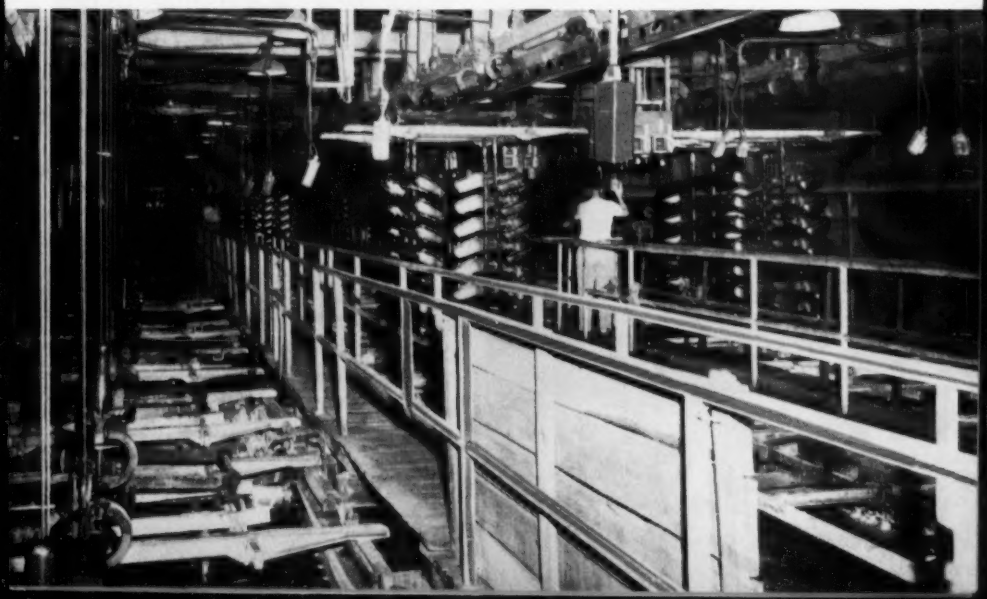
After polishing, the sheets are washed with hot water under high pressure. Sheets go through the washer and move on to the inspection station on a belt conveyor. Inspectors use a Profilometer to make sure that a 9-11 microinch finish is being attained. The inspector controls a magnetic sheet reject machine that removes unacceptable sheets from the line.

Acceptable sheets move on into a cleaning, phosphatizing and soap-coating unit recently built and installed by Cincinnati Cleaning & Finishing Machinery Company (Fig. 3). This machine prepares the sheets for forming.

The sheets travel through this unit on a disc conveyor. Sheets must first be cleaned. They are sprayed with a solution of Wyandotte BN cleaner operated at 190 deg. F. Cleaner concentration is maintained at 2 oz./gal. Sheets are rinsed with hot (150 deg. F.) water.

The next stage is phosphatizing. The phosphate coating serves as a rust preventive and, more importantly, aids in holding the lubricant

Fig. 6—Cleaning line is on left of photo, two plating lines on right. Racks of bumpers move through both lines on overhead monorails. Manually controlled hoists raise and lower carriers in and out of tanks. Plating area is pressurized by Mahon makeup air system.



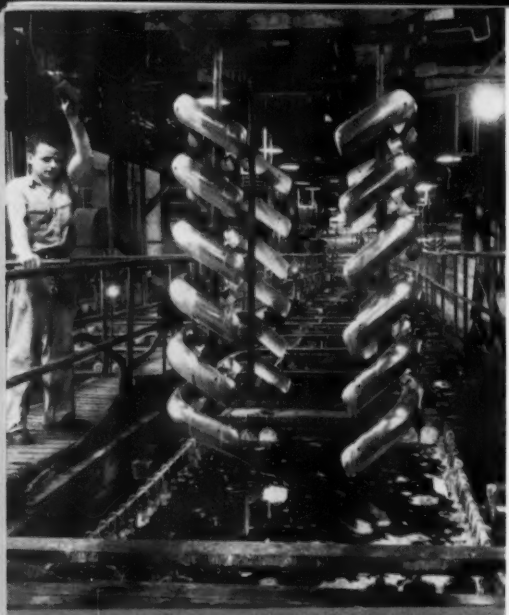
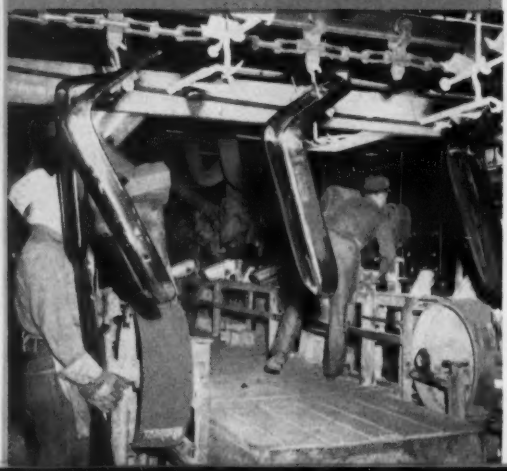


Fig. 7—Close-up: a rack of bumpers in the plating line. Plant has its own plating-rack manufacturing, coating and repair facilities. Racks are coated with Unichrome 218X plastisol, baked in a batch-type oven. Koroseal and Triflex linings are used in some tanks.

Fig. 8—Overhead chain conveyor in the foreground brings bumpers from the plating line after nickel plating. Murray-Way automatics are used to color buff the nickel plate.



"The sheets remain in the phosphatizing spray for about 30 seconds."

used for drawing. ACP Granodraw is the phosphate coating used.

The Granodraw solution is sprayed on the sheets as they move through the phosphatizing and soap coating machine. The sheets remain in the phosphatizing spray for about 30 seconds. The solution is kept at about 140 deg. F. This treatment is followed by rinsing the sheets in a hot (170 deg. F.) water spray. Sheets pass through squeegee rolls, which remove most of the water, and then move over an open gas flame that preheats the sheets to 200 deg. F. In the final section of this machine, the sheets are sprayed with a drawing compound made by Pennsalt Chemicals. Four guns on each side of the sheet thoroughly spray the sheets. Hot air blows off the excess soap, and a magnetic unloader picks the sheets off the conveyor. Sheets are now ready to be formed (Fig. 4).

Formed bumpers are polished as (and if) required with "PG" Wheels (Fig. 5) and setup wheels.

Cleaning

Two identical lines (Figs. 6, 7) of processing tanks are used for cleaning and plating. Both lines are served by overhead monorail conveyors and manually controlled hoists to transport the work carriers through the system and move them in and out of the tanks.

The first tank in the line is a soak cleaner tank. It contains 2 oz./gal. of Wyandotte BN cleaner and 2

"Houdaille is careful to drain all work thoroughly . . ."

oz./gal. of caustic soda. This solution removes heavy grease from the sheets. Steel coils keep the solution heated to a temperature between 175 and 205 deg. F. Sheets remain in this tank for two minutes. Concentration of alkali in the cleaning tank is checked daily and corrected by addition of caustic soda until the solution is 0.56 N (alkalinity).

The next tank in the cycle is a cathodic cleaning tank. Solution make-up of this tank is the same as the soak tank. Time of immersion is one minute, 40 seconds, to three minutes. A current of 2500 amperes per load is applied.

After rinsing, the bumpers move into an anodic acid-dip tank. This solution is made of 70 per cent sulfuric acid in water. Correct concentration is important to prevent pitting, which occurs at lower concentrations. Large amounts of water entering the tank by drag-in can affect the concentration significantly; therefore, Houdaille is careful to drain all work thoroughly before it enters this tank. Current is held between 75 and 150 a.s.f. This process removes the layer of oxide that forms on the steel, leaving an active surface upon which to plate. The bath is kept at room temperature and work is immersed with the current on for 15 to 30 seconds.

Bumpers move through another water rinse tank, then into a reverse cleaning tank. The solution in this tank contains 9 oz./gal. of Wyan-

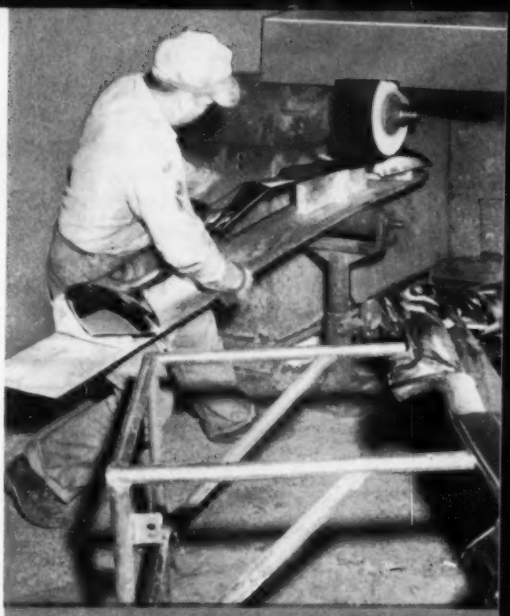
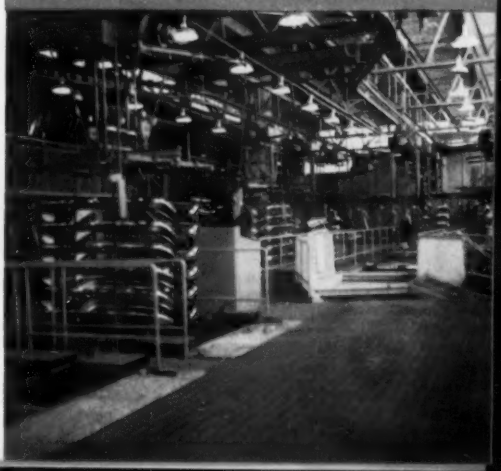


Fig. 9—Some bumpers are color buffed only in areas missed by automatic buffing machines. Entire surfaces of others are hand buffed. Flat polishing operations performed before bumper is formed, plus brightness possible with bright nickel plate limit buffing.

Fig. 10—Houdaille Industries' new chromium plating line. Plated bumpers are unloaded from plating conveyor and put on transport conveyor. It takes them to inspection area.



dotte FS cleaner. Temperature is held at 175-205 deg. F. Time of immersion: one minute, 40 seconds, to three minutes maximum. Reverse cleaning removes carbon smut left on the steel after the anodic acid cleaning process.

Following another water rinse, bumpers go into the final stage of the preparation cycle, an acid dip. The tank contains a 20 per cent solution of 20-deg. Baume hydrochloric acid, which is kept at room temperature. Bumpers remain in the tank for two minutes. Acid concentration is checked on every shift, and additions made if necessary. This bath removes oxide formed in the reverse current cleaner and neutralizes any alkali remaining on the work. The hydrochloric acid dip leaves no carbon smut.

Copper Plating

A final rinse completes the metal preparation cycle, and bumpers move into the copper plating section of the plating line. This cyanide copper bath is made up as follows: soda ash, 2 oz./gal., copper cyanide, 3 oz./gal., sodium cyanide, 4½ oz./gal. Sodium thiosulfate is added in small quantities, as needed, to brighten the deposit.

Steam-heating coils in the cyanide copper tank keep the temperature of this bath at about 125 deg. F. Plating time is two minutes, 15 seconds, at 35 a.s.f. Excess soda ash in the bath is removed by drag-out or by discarding part of the bath directly. Daily tests determine cyanide content, alkalinity and copper content. The solution is filtered continuously.

A water rinse and then a dip in dilute sulfuric acid follow the cyanide copper plating. Work is left in the one per cent sulfuric-acid solution for about one minute to neutralize the alkaline film left by copper plating.

Nickel Plating

The nickel plating solution is made up as follows: 55 oz./gal. of nickel sulfate; 7 oz./gal. of boric acid; ¾ pound of Perflow per 100 gallons; ½ gallon of XXXD Non Pitter per 100 gallons; sulfuric acid or muriatic acid is added until pH is adjusted to 4.0.

Temperature of the nickel plating bath is held at a point between 125 and 130 deg. F. Time of plating varies according to the part being plated. Baths are checked weekly for metal content and boric acid content; Perflow content is checked daily. Cathode rod agitation is employed.

Each plating line has seven nickel plating tanks made up as outlined above, so as to get sufficient production. Nickel solutions are filtered continuously through Industrial filters. Karbate heat exchangers are used to control temperature.

Racks of bumpers next travel into another nickel plating tank similar to the one described except that Perglow is used as the brightener. Each line has two Perglow tanks.

A hot water (160 deg. F.) rinse removes remaining nickel solution from the bumpers and heats them enough so that they will dry before unloading. Fresh water is supplied to this tank continuously.

Buffing

Nickel plated bumpers are unloaded from the plating racks at this point and placed on an overhead monorail transport conveyor

that takes them to the buffing area (Fig. 8).

The nickel is color buffed on automatic buffing machines, using loose cloth buffs. Hand buffing is employed to buff spots in areas that automatic machines miss.

The entire surface of each Lincoln and Imperial nickel plated bumper is hand buffed (Fig. 9).

Chromium Plating

The buffed nickel plated bumpers return to the plating line on overhead conveyors. They are removed and racked for chrome plating.

Bumpers are electrocleaned in a solution of 4 oz./gal. of Wyandotte BN Cleaner. Current used is the same as for direct-current cleaning of work prior to nickel plating. The bath operates at 160 deg. F. Bumpers remain in the solution for 25 seconds to 2 minutes. A water rinse, an acid dip (3 to 4 per cent sulfuric acid) and an acidic rinse complete the cleaning cycle.

Chromium plating baths are made up of 30 oz./gal. of chromic acid and 0.33 oz./gal. of sulfuric acid. The bath operates at 125 deg. F. Bumpers are plated for about two minutes.

Lab workers check the chromic acid and sulfate contents of the bath each day. The ratio of sulfate to chromic acid is kept at 1 to 100.

A concentration rinse, a cold water rinse and a hot water rinse complete the chromium plating cycle (Fig. 10). The last hot water rinse is hot enough so that the bumpers are dry before unloading.

Bumpers are unloaded from the racks, carried by a transport conveyor to an inspection area, inspected, and then packed in padded paper, or cartons, and stacked, ready for shipment.

Bumper hangers, used to mount bumpers on the car, are also made in this plant. They are formed, given a heavy coat of black enamel by dipping, and baked at 450 deg. F.

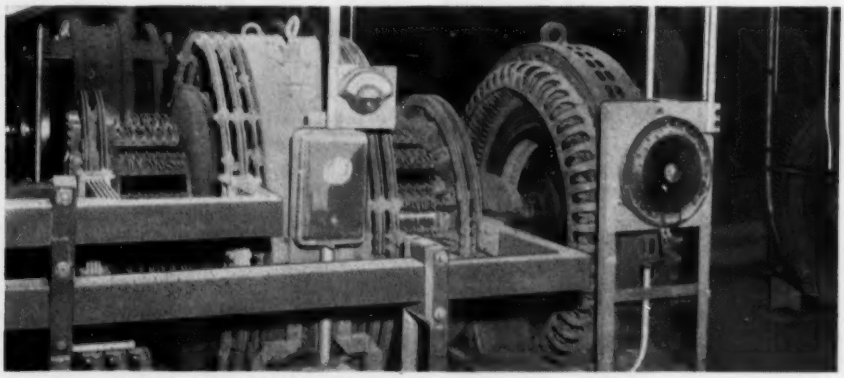


Fig. 11—Generators supply all current used in this plant for cleaning and plating. Hanson-Van Winkle-Munning generator shown in foreground is used to supply power for nickel plating tanks. (Fig. 3 courtesy Cincinnati Cleaning and Finishing Machinery Co., Sharonville, Ohio. Fig. 7 courtesy Houdaille Industries, Inc. Other photos by PRODUCTS FINISHING.)

Finishing Gasoline Pumps: Conveyorized Electrostatic Spray Boosts Production

Ft. Wayne manufacturer meets demands for increased productivity by installing conveyors, electrostatic spray, new oven . . .

By L. D. McCLANAHAN
General Foreman
Pump Division
Bowser, Incorporated
Ft. Wayne, Indiana

Fig. 1—These three pumps are typical of the gasoline pumps being manufactured by Bowser, Inc., Fort Wayne, Indiana.

Painting is an important part of the manufacturing process at Bowser, Incorporated, Ft. Wayne, Indiana, manufacturer of gasoline pumps (Fig. 1). The oil companies know that an attractive pump is part of sales appeal, and thus each customer has his own painting specifications. All in all more than 300 separate colors are involved. Pumps that have to be painted in more than one color run the total number of different color combinations up to approximately 900. Five or six color changes a day is common practice in this plant.

Color specifications are not our only concern. Because the pumps are constantly exposed to the weather, the finishes applied must also meet performance specifications regarding corrosion protection.

Bowser now produces about 1,000 pumps a month. When production demands increased in 1957, one section of the plant that had to be modernized to keep up the pace was the finishing department.

To accomplish this objective, the company decided to install a Ransburg No. 2 reciprocating disc electrostatic spray unit, an overhead conveyor, and a new gas-heated oven.

The recently installed system has eased the production pinch in the painting department, allows the company to build, paint, test, assemble and ship the complete pump within two days after the production department receives the order. And it can be done with only one shift running. The new system will paint up to 55 sets of pump housings and parts per hour, and maintain high quality and uniformity at the same time.

Oven and conveyor were installed by W. C. Grant Company, Indianapolis, Indiana.

Process Details

Some parts are fabricated in the Bowser plant, while others come into the plant already formed. Workers begin the process by hanging parts on the conveyor in the proper sequence to facilitate assembly. One set of parts, for instance, consists of two side panels, 11 by 50 inches each; two front and back housings, each 20½ inches wide by 54 inches high; top housings, which are hung four to a fixture; 7-inch-diameter coverplates, which are hung 14 to a workholder; and the housing doors, which are mounted into the side panels.

Fig. 3—Gasoline pump housings and parts are painted electrostatically as the conveyor makes a loop around the floor-mounted Ransburg No. 2 Process Reciprocating disk.

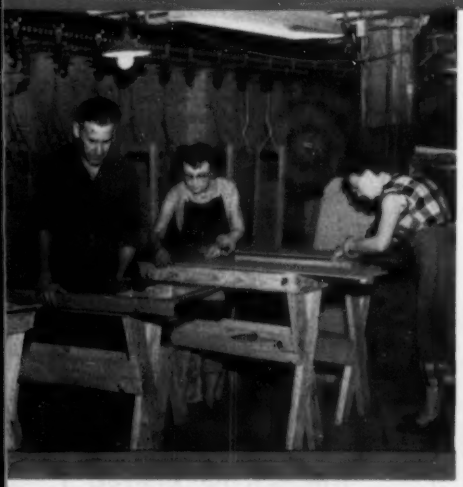


Fig. 2—Primed parts for gasoline pumps being masked in preparation for electrostatic application of the first finish coat.

The conveyor, 286 feet long, operates at five to eight feet per minute. Parts are hung on 16-or 32-inch centers, depending upon size.

A six-stage cleaning machine removes all oils, greases, dirt and so on from the parts before finishing. The stages are as follows: cleaner, hot alkaline cleaner, hot rinse, phosphate coating; hot rinse; chromate dip.

After drying, parts first go into a

hand touch-up booth, where they are reinforced in recessed areas. Then they move into the electrostatic spray area, where the floor-mounted Ransburg reciprocating disk applies the primer coat.

The conveyor next carries parts into a gas-heated convection-type oven which bakes the prime coat at 300 deg. F. for 15 minutes.

Where specifications call for multi-colored pumps (some housings are produced in three colors) parts are removed from the line after priming and masked before applying the finish coat (Fig. 2).

If the color run is large enough to warrant it, parts remain on the conveyor after baking the prime coat. Then color in the electrostatic spray unit is changed, and the finish coat is electrostatically applied and baked in the same manner (Figs. 3, 4).

The electrostatic spray disk is 25 inches in diameter. Length of the reciprocating stroke is easily adjusted to meet requirements. This adjustment is particularly helpful in painting two-tone pumps. Bowser uses a stroke 20 to 53 inches long, depending upon the part being finished. Indexers on the conveyor line in the electrostatic spray area turn the parts to coat both sides.

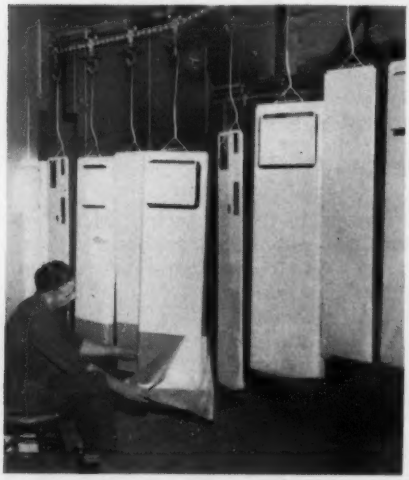


Fig. 4—Masking is removed from the pump housings just before they move into oven for the final bake. (Photographs courtesy Ransburg Electro-Coating Corporation, Indianapolis, Indiana, and Fort Wayne Division, Bowser, Incorporated, Fort Wayne, Indiana.)

Coming Up: Profitable Reading

Future issues of PRODUCTS FINISHING will contain many valuable articles . . . the kind that tell the finisher how to do his job better, how other people have improved finishing operations. Look for these and other interesting articles in coming issues:

How to Plate Selectively With a Stencil Mask

The story of a new approach to selective plating . . .

How to Produce High-Quality Zinc Chromate Coatings

An expert in the field of conversion coatings tells how to get the best from chromate coatings...

Planning and Operating an Industrial Waste Disposal Plant

Large plant gets top results by installing waste disposal facilities as an integral part of a new plating line.

Watch for these and other articles in PRODUCTS FINISHING, the Finishing Industry's most informative publication!

Epoxy Coating Speeds Camera Production

Two-component epoxy-based coating provides tough, non-reflective surface for camera interiors . . .

Eastman Kodak's Apparatus and Optical Division recently switched to an epoxy-based coating to finish the interior of it's Signet 40 camera (Fig. 1). The coating has enabled Kodak to speed production and at the same time maintain the high quality standards set by the company for all of its products.

The special coating applied to the Signet 40 is a dull Rexclad "R" manufactured by Rexton Finishes, Inc., Irvington, N. J. It is a two-component system based on Epon resins manufactured by Shell Chemical Corporation, plus suitable hardening agents. Specially formulated to be used on phenolic parts, such as the body of the Signet 40, the recently developed coating ad-

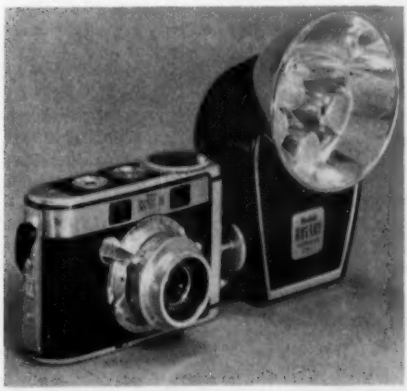


Fig. 1—The Kodak camera above now has a dull black epoxy-based finish on its interior.

Fig. 2—Interior of molded camera body is sprayed with dull black epoxy finish to eliminate reflectivity. Rack of parts already sprayed is shown in photograph at right.

heres well to the plastic.

The coating components and hardeners are mixed just before application. Pot life is about 36 hours. The chemo-setting finish is then sprayed on the camera interiors (Fig. 2). It is at this point that time is saved. Formerly, the camera parts had to be sand blasted to assure proper adhesion. Now the epoxy-based enamel provides the required adhesion without sandblasting.

After the camera parts have been sprayed, they are loaded onto metal trays. When full, the trays are loaded onto a portable 20-tier rack. The rack is connected to a conveyor, which carries the parts through an oven (Fig. 3). Complete curing results from a one-hour bake at 170 to 250 deg. F.

The finish produced is a dull black coating with a scanning incidence gloss of zero. It provides a black, non-reflective finish that absorbs virtually all stray light rays. Such rays, if reflected toward the film, could impair the quality of photographs taken with the camera.

Distortion of the phenolic parts, which could result from curing at high temperatures, is avoided by the low baking temperatures.

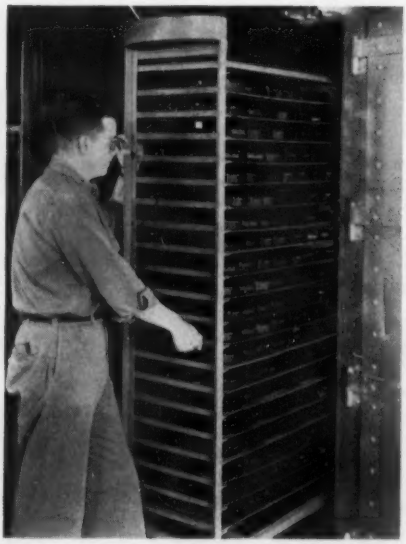


Fig. 3—After Rexclad "R" finish is applied, racks containing the sprayed parts are attached to a conveyor, which takes them through the drying oven. (Photographs courtesy Shell Chemical Corporation, Chemical Sales Division, New York, New York.)

★ ★ ★

WASTE TREATMENT AND WATER CONSERVATION FILM. An industrial film entitled "Pure and Simple" highlights ways in which industry can conserve water and combat pollution by salvaging by-products, recirculating water and treating wastes.

Specialized equipment is shown in action. Animated cartoons show how various systems work. Available to those companies and organizations concerned with industrial waste. Write on company letterhead to Public Relations Dept., **Link-Belt Co.**, Prudential Plaza, Chicago 1, Ill.

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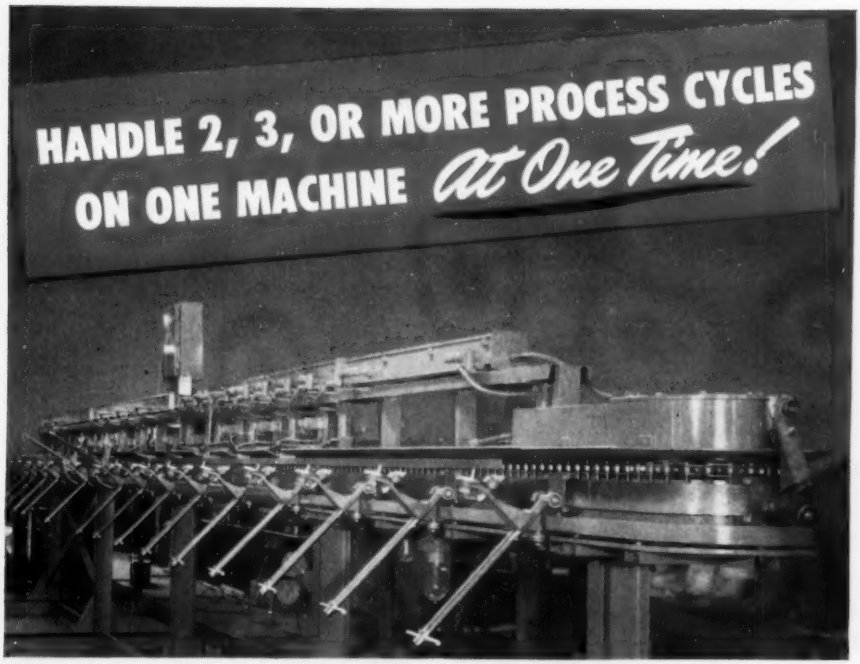
GUIDE TO METALLIC POWER RECTIFIERS. A 32-page book on germanium, silicon, and selenium rectifiers shows how these units are used in anodizing, electrocleaning, electroplating, other applications.

Includes data on operational characteristics, components used, remote controllers, output regulators, and so on. Request on company letterhead. **Sel-Rex Corporation**, Nutley, N. J.



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Possibilities of Barrel Finishing Processes

Questions and answers about barrel finishing—what it can do, costs, media and compounds, water, types of equipment, maintaining consistent results . . .

An Interview With
C. J. GLASRUD
Technical Supervisor, "Honite" Division
Minnesota Mining and Manufacturing Co.

Mr. Glasrud, is there any simple definition for barrel finishing?

Barrel finishing basically involves the removal of metal from a work piece by random abrasive action—whether it's with loose mineral grain, abrasive chips, or the attrition of the parts on each other.

It's a random stock removal process?

Yes, but don't let the word "random" confuse you. Barrel finishing when done properly is a precise, exacting operation and is at all times under the control of the operator. "Random" means that overall stock removal or polishing is taking place —not simply on one surface, but on all surfaces of the work piece. The amount or degree of removal is carefully controlled.

Is barrel finishing limited to stock removal?

Absolutely not! The process is applicable to many finishing operations—descaling or degreasing, generating radii, coloring, polishing and deburring—to mention some of the more common ones. If degreasing, for example, is to precede deburring, it frequently cuts handling costs to do both operations in the barrel.

What are some types of parts or work pieces that can be barrel finished?

You've hit a pretty broad subject. They can be parts with bearing or wear surfaces, or complete products being finished for plating. Just about anything that can be put into a barrel stands a chance of being barrel finished. Where the parts are small and simple (maybe 2,000 to a barrel) the chances are that the parts can be done. If the parts are large (maybe one to a barrel) or have many inside surfaces and holes, the opportunity for barrel finishing depends on the finish specifications. Shaped media have helped greatly in getting into

recesses of these complex forgings and castings.

It seems to me that inside diameters would be a real problem.

Not as much now as they used to be. There is a system of barrel finishing just coming into use in which the barrel not only rotates, but vibrates at the same time. This vibratory action moves the media through the inside diameters. You have to be careful, of course, to suit the chip size to the diameter to avoid lodging of chips.

You mentioned castings — does this include all types?

Pretty much. We know that barrel finishing is successful with die and sand castings, and we've got field work going on all of the other types. But castings were just an example. The bulk of precision barrel finishing involves deburring, improvement of mechanical or ground surfaces, and generation of smooth surfaces for final finishes or for decorative plating.

What about shapes, Mr. Glasrud? Does the part have to have all flat surfaces or can it be contoured?

We've found the best shape for barrel finishing is a gradual curve or a gently rounded surface — at least that's the easiest shape to finish. But if they were all like that the laboratory people would be out of work. Oddly enough, the parts that often require the most barrel finishing time and depend the most heavily on barrel finishing technique are those with dead-flat surfaces. Parts with deep recesses or those on

C. J. Glasrud

which we have to hold a sharp corner are also more difficult—but by no means impossible. Compared to doing these pieces singly, by hand, barrel finishing is a real help.

If I were a manufacturer with some parts to be finished, how would I determine whether barrel finishing could save me any money?

First of all I'd suggest you send some sample parts to a distributor of barrel finishing supplies. Many of these men have job shops or testing barrels in conjunction with their distribution setup. They also are equipped with, or are aware of, latest methods and materials. Such a test would determine two things for a given part: first, whether it could be barrel finished at all; and, second, which combination of equipment, materials and methods offers the most economical production operation, in the least amount of time.

I suppose the amount of time determines finishing costs?

Yes, it does have an effect on them, but there are other factors to consider. The types and amounts of compounds and abrasive chips, the number of operations, separation procedure and handling techniques all contribute to cost. Once a barrel finishing system is set up, and the operator develops finishing and handling techniques, it's possible to reduce the cost of a given operation again and again. As in most other fields involving labor, it's the time the operator spends *handling* parts that adds cost to the operation.

What does it take to start a barrel finishing installation?

There are actually five basic elements. First, of course, you have to have parts that can be barrel finished. Then, you need abrasive media (that's the chips), barrel finishing compound (that's the powdered material), water (an important part of the operation), and, naturally, a barrel.

"First time I've seen 'er backlash —"

What about selection of abrasive chips?

There's quite a history to barrel finishing media, and I don't think we need to go into it here, suffice it to say that a great variety has been tried — metal stars, tacks, glazier's points and others, some of which are still being used in specific instances today. Later on the swing went to natural abrasive stones, granite and limestone, which are widely used with excellent results. More recently, manufactured abrasives have expanded the use of barrel finishing in the field of precision finishes.

What's the background on these newer chips?

Well, during World War II aluminum oxide and aluminum oxide impregnated materials were introduced in the aircraft industry where low tolerances and high finishes were the rule. These are fast-cutting chips. Aluminum oxide by itself has the disadvantage, however, of wearing rather rapidly. To offset this, a synthetic chip was developed by adding a silicate to the aluminum oxide, and then firing to complete vitrification. The result is a tough, fast-cutting, long-wearing chip. Still more recently, shaped media have been introduced.

Why the special shapes?

Uniform shapes and precise sizing eliminate lodging when the design of the part is such that stones might stick in holes or recesses. If you're buying a manufactured shape, its long-wearing qualities are important to retain the original shape and size. But shaped media also include metallic material — zinc, steel slugs and shot. Steel balls have proved to be excellent for achieving a high polish on many steel parts.

What do compounds contribute to barrel finishing?

More and more, compounds are expected to do special work such as grease and scale removal, and rust inhibition. Cleaning parts is important because we find that nearly half of all barrel finishing difficulties are due to dirty—burred, scaly or greasy—parts. This dirt retards and in some instances cancels out the action of the abrasive chip. As an example of the retarding effect of "dirt," we have found in our laboratory that if a set of parts is run five hours, then rinsed, and the compound renewed and the set is run for another five hours, the rate of cut is twice what it is for a single run of 10 hours. Compound can sometimes be used over again, as with submerged units, but watch out that you're not using the dirt over again, too!

Is it possible to degrease or descale parts while they are being finished?

Definitely. That's one of the things we mean by "technique" — knowing when and how much of a given compound to use.

Any other kinds of compounds?

We've mentioned cleaning and rust inhibiting compounds. For some types of work there are abrasive compounds in which the abrasive ranges in size from 30 mesh to 600 mesh. These include aluminum oxide, which is the most effective but somewhat dirty and requires thorough subsequent parts washing. Quartz is clean, but is most effective when the cutting requirements are not too great. Where the amount of required abrasion doesn't demand more, I personally favor the quartz type. Silicon carbide is fast cutting, but sometimes has a tendency to build up pressures within the barrel. Coloring compounds are mildly abrasive and are intended for generating a bright finish, particularly on zinc products.

"Our 'fringe' benefits are showing up at last!"

Well sir, we've talked about parts, chips and compounds: now, do you have anything to say about the equipment itself —the barrels and accessories?

The type of barrel to choose for a given installation depends on a lot of things, including how much room the user will allow for barrel finishing equipment, and the average size of the parts. The standard barrel, I guess you could say, is octagonal with a lining to prevent parts damage against the steel sides.

What about the vibratory barrel you mentioned earlier?

This has been introduced just recently. It offers a way to barrel finish inside diameters. Outwardly the barrel looks much like any octagonal barrel—but the frame is necessarily larger to accommodate the vibratory mechanism.

PRODUCTS FINISHING Magazine

I gather there are other shapes besides octagonal?

Yes, there are open-end, conical barrels, round barrels — and some, called jar mills, that even look like barrels or kegs. Recent advances have brought submerged units into use, and in many cases large parts may be fixtured in specially designed barrels to protect the parts and concentrate abrasive action in selected areas.

What else is available in the equipment line?

Chip bins for media storage are a desirable investment for large users of media; hoist pans to fill the barrels with chips and parts make the work a lot easier; and either a vibrating or magnetic separator to separate chips and parts after finishing is almost a must.

There was one other factor you mentioned: oh yes, water. Where does water fit into a barrel finishing operation?

It's about as important to barrel finishing as it is to the plasterer or mason. It's the water in the barrel with the chips, parts and compounds that unifies the mass, and causes it to slide freely and smoothly. Water level is a variable—and vital — factor in successful barrel finishing. The hardness of water can affect the color of the finish. Insoluble soaps formed from hard water ions give a haze to a metal surface. This hardness can be balanced by use of proper compounds. Don't be too quick to put responsibility for finishing troubles on

hard water, however, since several other factors are important.

There seems to be an almost endless number of variables in the process. Doesn't this complicate the procedure? How do you maintain consistency from batch to batch?

It's the number of variables that makes barrel finishing as valuable as it is to industry. Because of the variables almost any part that can be put in a barrel can be barrel finished successfully, providing you have the right combination of compound, chips, water, barrel speeds and time. I know I just threw in a couple of factors we haven't discussed—speed and time—but we'll get to those in a minute. The real key to a productive and cost-saving barrel finishing system is record keeping. Every time a batch of parts is run, all the necessary data should be carefully recorded and filed. Then, next time the same type of parts come along a simple check of the files will indicate the right barrel finishing formula. Another advantage is that you'll have a starting point for running tests on similar parts.

You recommend trial runs, then?

By all means. A trial run is essential for new types of parts. The process is simple enough.

Let's go back to speed and time.

Barrel speeds vary from four to 32 r.p.m. The best speed is generally the fastest speed at which the parts can be run without damage from impingement in the barrel. After the speed is determined, the parts are run, with periodic checks, until the desired finish is obtained. That point indicates length of run.

There seems to be some discussion between barrel finishers about whether the system is a science or an art. What's your opinion, Mr. Glasrud?

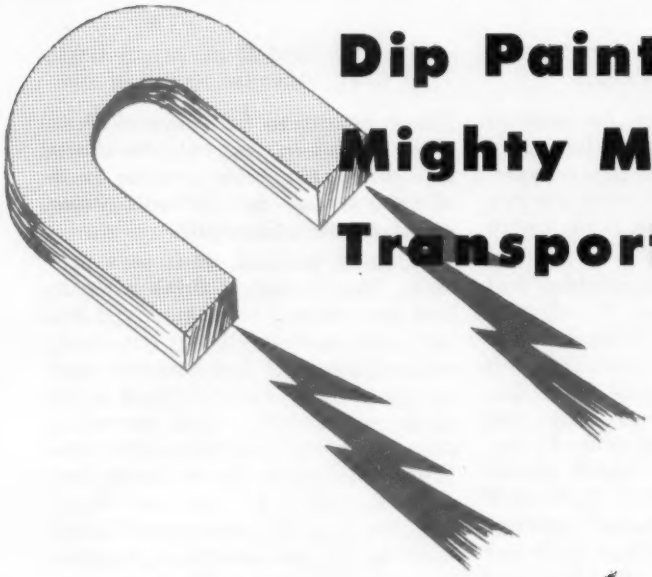
I prefer to think of it as a science. True enough, I think when it first got started it was played by ear more than anything, but modern technological developments and record keeping have removed a lot of the guesswork — and moved it over into the scientific bracket. We've still got a lot to learn; but we've learned a lot, too, and barrel finishing has definitely established itself as an economical, high quality mass finishing method.

A Survey of Paint Application Methods

A series of articles on painting methods have been reprinted as a 64-page booklet.

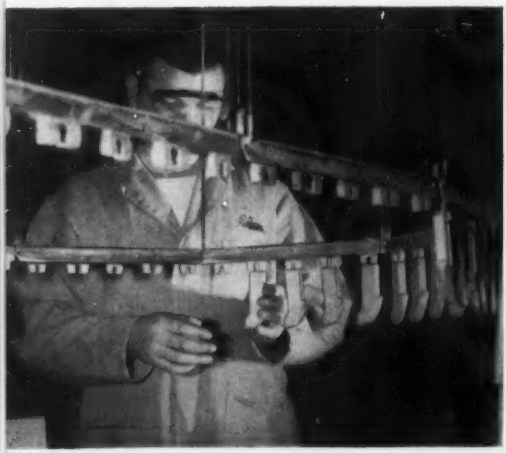
Chapters in the report cover: 1) Use of the Spray Gun. 2) Conveyorized Spray Finishing; Automatic Spraying; Electrostatic Spray Painting. 3) Hot Spray; Airless Spraying; Steam Spray Painting; Spraying Catalyst Coatings. 4) Dipping Methods; Flow Coating. 5) Roller Coating; Tumble and Centrifugal Painting; Silk Screening; Aerosol Painting.

Reprints of *A Survey of Paint Application Methods* are available at 50 cents a copy. Write to PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio.



Dip Painting: Mighty Magnets Transport Tools

General Electric solves a materials handling problem by using magnets to hold parts on the conveyor during painting . . .



During installation of a production painting line for Carboloy mining tools, manufacturing engineers at the Metallurgical Products Department of General Electric Company, Detroit, encountered several difficulties in handling parts. Alnico V magnets solved one of them.

With several sizes and shapes of tools in production at the same

Fig. 1—This worker is attaching Carboloy mining tools to the conveyor that will take them through dip-painting process. Alnico horseshoe magnets provide a simple way to hold all the different sizes and shapes.

Fig. 2 — As the conveyor line dips, tools enter tank of aluminum lacquer, which is kept stirred by mechanical agitation.

time, and mixed shipments required regularly, finding a fixture to hold all the tools on the conveyor during painting proved to be troublesome.

The answer: General Electric Alnico V magnets. More than 400 one-ounce horseshoe magnets were attached with wire loops to the suspended conveyor channels (each of which is about a foot long). Parts are held on by magnetic attraction. The magnets swivel to permit the attached tools to hang vertically, even though the line itself climbs and dips during the cycle. Hung with like poles next to one another, the magnets exert no mutual attraction, and thus have no tendency to move out of normal position.

Painting Process

After inspection, the unpainted tools are delivered to the conveyor line, where they are attached to the magnets by hand (Fig. 1). The line moves on and dips into a tank of aluminum lacquer (Fig. 2), which is stirred by a mechanical agitator to keep the aluminum powder in suspension.

As the tools emerge from the dip tank, a blast of compressed air knocks off excess paint. Air is circulated around the tools to hasten drying. Painted tools are removed and sent on their way (Fig. 3).

The conveyor dips into a tank of hot alkaline stripping solution immediately after the tools have been removed, and then through a hot water rinse. This step removes paint. In this way, the conveyor fixtures automatically remain free from paint. They are always ready for another cycle.

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For more data on any product advertised in PRODUCTS FINISHING circle numbers on postpaid card opposite page 128.

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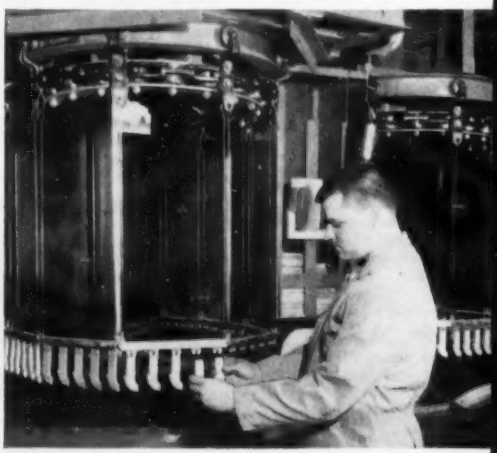

Fig. 3—Painted mining tools are removed by hand, packaged, and sent on their way, ready for shipment. (Photographs courtesy Metallurgical Products Department, General Electric Company, Detroit 32, Michigan.)

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You get all these advantages, and more, with a UDYSIL Rectifier! Silicon, the amazing long life element, combined with a new, revolutionary BALANCED circuit, makes the Udysil line the most advanced series of plating rectifiers ever developed! Only UDYSIL gives you . . .

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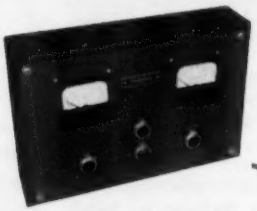
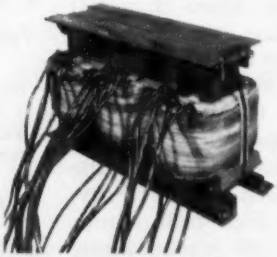
All these *exclusive* advantages are yours when you select UDYSIL. In addition, all transformers contain high quality, glass-wound insulation for maximum protection against moisture and chemical attack. Now, here's the inside story on UDYSIL!



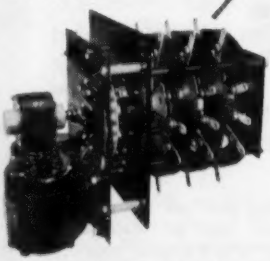
Removable Control Panel

Here's the removable control panel that can be retained on the front of the rectifier or mounted remotely anywhere in your shop. Big, easy-to-read dials give you a quick visual check on performance.



Regulator Transformer

A familiar item on all Udylite rectifiers, this transformer assures you proper voltage and current regulation when you need it. UDYSIL is also available without regulation, if preferred.



Motor Driven Tap Switch

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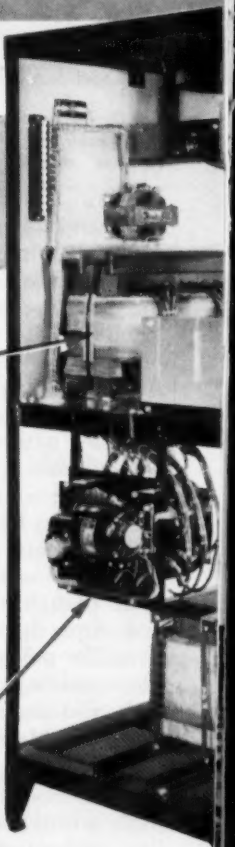

Illustrated here is a UDYSIL 2

UDYSIL

WITH BALANCED POWER

Silicon Cell

Here is the Silicon Cell, the non-aging, unlimited life "heart" of the new UDYSIL rectifier. Hermetically sealed, this cell allows a lifetime of service. No loss of efficiency occurs with Silicon no matter how much . . . or how little the rectifier is in use.

Cell Assembly

This cell assembly is designed to allow the utmost in cooling and ventilation. The cells are hooked up in three independent single phase tap circuits. Six cells comprise a rating of 1000 amps. Multiples of six cells are used as ampere ratings increase. (Example) In the rectifier illustrated here, the UDYSIL 2000, two such assemblies are included for a total of 12 individual Silicon cells.

Main Transformer

This *BALANCED* Main Transformer was designed to give each cell of Silicon a uniform output. By balancing the amount of current that each cell is required to carry, UDYSIL can now develop uniform efficiency without overstressing the load on any one cell. This *BALANCED* Transformer and the new Silicon cell make a combination that is unbeatable for long life and high efficiency.

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- ★ Equipment can be supplied for any degree of voltage control. A vernier can be added to provide control steps intermediate to those of the tap switch.
- ★ Induction regulator for high current requirements.
- ★ Constant voltage control
- ★ Constant current control
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- ★ Automatic programming

SPECIFICATIONS

AMPERE CAPACITY	VOLTAGE CAPACITY	KVA CAPACITY
1000	6	8.6
1000	9	13.0
1000	12	16.0
1000	18	24.0
1000	24	30.0
1500	6	13.0
1500	9	19.0
1500	12	24.0
1500	18	36.0
1500	24	45.0
2000	6	17.0
2000	9	26.0
2000	12	32.0
2000	18	48.0
2000	24	60.0
3000	6	26.0
3000	9	39.0
3000	12	48.0
3000	18	72.0
4000	6	34.0
4000	9	52.0
4000	12	64.0
5000	6	43.0
5000	9	65.0
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THAT BIG STEP FROM SUPERVISOR TO EXECUTIVE

This transition point, according to the author, is becoming increasingly important as our industries continue to expand and top-flight executive material becomes more difficult to obtain.

By ALFRED M. COOPER

As a rule, the management of any corporation prefers to select its top-flight executives from the ranks of its present supervisory force. The reason is simple: These supervisors are men who have served their company loyally for a period of perhaps 20 years. They have become familiar with every facet of company policy and routine as it relates to a hundred-odd matters. They have a fair knowledge of the existing management personnel, and the degree to which this personnel differs from that of other companies.

Thus, a supervisor who has been made an executive in his own company (and this is a tremendous, clearly defined step forward for him) will never be heard to say, "Now, this is not the way we did things over at the Blank Corporation." Of course it is not, but it may require years for an important executive, however intelligent and well-grounded in the fundamentals of his job, to understand *why* things are done differently in the new plant. During this period of orientation such a new executive can create

quite a bit of disaffection, not only among his brother executives, but with the supervisors reporting to him, and even among members of the work force. Any of these may feel either that the new chief is away off the beam, or that their own organization is behind times in many important respects. Either reaction can cause a lot of trouble.

There are, of course, exceptions to this rule, and these should be noted here. *I have known of many executives in my time who could change over from one company to another and never even turn a hair.* These men were executives first and engineers or scientists secondarily. Such men appreciate that their real job now is *administration*; that their earlier training in a trade or profession has little bearing on their success as an executive.

Thus, I once knew a man who was general manager of an electric power company in Illinois. Somehow the management of one of the greatest of our chemical corporations discovered that this fellow was a marvelous executive. After investigation, they offered him a job as general manager of one of their largest plants, *at twice his salary as a utility executive.*

The general manager protested that he knew *nothing* of chemical manufacture; he was told they were not employing him in that capacity; that they had plenty of men who knew everything about that subject. What they would be paying for was his proven ability as an *administrator*. After much consideration he took the job, and it was no surprise to those of us who knew him best that he made a phenomenal success with the chemical corporation. This man was an *executive,* first and foremost. He knew how to utilize and direct the knowledge of subordinate executives — even when this knowledge was completely beyond his ken.

In another instance I listened to a talk given by the branch superintendent in the greatest telephone manufacturing plant in the world. This man had earlier been a chemist in that plant (in that plant "branch" referred to a group of divisions; the branch superintendent had approximately 8,000 chemists, physicists, metallurgists, et cetera, reporting to him). In this informal address, the superintendent began frankly by stating that he had forgotten most of the chemistry he had known; that his present job was *dealing with human-factor problems* presented by the thousands of chemists, physicists, and various individuals who now reported to him.

". . . management of any corporation prefers to select top-flight executives from the ranks of its present supervisory force."

"Above the rank of division head or superintendent the line of promotion is more clearly defined."

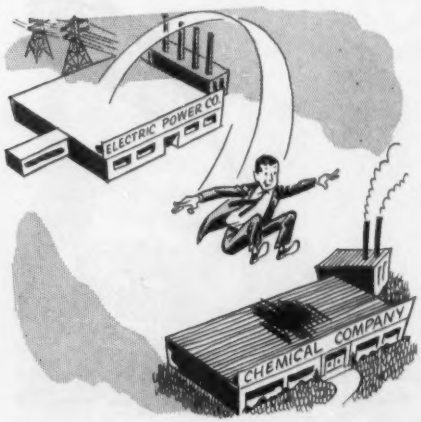
Both of the aforementioned executives had long ago learned that administration is a profession in no way related to the type of work performed by the artisans under their direction. *Each individual also knew that there is a vast difference between the work of a supervisor and that of an executive.*

In order to discuss intelligently the transition from supervisor to an executive, it is well to utilize a more or less standard terminology. Thus, in most industrial organizations, a foreman is definitely a supervisor and probably a very good one. But he is definitely *not* an executive. In many of our largest metalworking plants (employing 50,000 or more people) the line of promotion is somewhat as follows: from artisan to straw boss, then probably on to an assistant foreman or assistant office manager; thereafter to a full-fledged foreman or office manager. This man, while still a supervisor, continues to be a supervisor even though he may have as many as 500 people reporting to him. A good example of this might be the foreman of a large punch press department.

Later this foreman, if he has what it takes, is made general foreman, with a number of foremen reporting to him (perhaps the foremen of a half dozen punch press departments). This general foreman has enormous responsibility, and much of the success of the company may depend upon his efforts. But he may, in instances, still continue in the ranks of the supervisors.

Thereafter, the logical line of promotion in such a large plant is to the job of superintendent or division head, with perhaps a number of general foremen reporting to him. *Now he has definitely reached executive rank.* Or, the jump may be from foreman or department head to division head or superintendent, in which case this constitutes the line of demarcation between supervisor and executive.

Above the rank of division head or division superintendent the line of promotion in a large plant is more clearly defined. A division head will become a branch manager or superintendent, with a number of divisions and thousands of employees under his control. Thereaf-



"I have known of many executives in my time who could change over from one company to another and never even turn a hair."

"In a governmental organization the setup may well become more confusing."

ter, there may be but two promotional moves possible: assistant works manager, and works manager. Above this latter august personage (who has the entire 50,000 mythical employees reporting to him), there can only be the officers of the corporation—possibly a vice-president, president, and chairman of the board. But so far as production is concerned, the works manager actually calls the shots.

The above is a general line-of-promotion, and working as consultant or executive in 20-odd large corporations, I have found it pretty much standard. Sometimes the straw boss is called a section head; sometimes, in a smaller concern, the branch manager may not appear at all. Otherwise, in private industry, you know pretty well where the line of demarcation occurs between supervisor and executive.

In a governmental organization the setup may well become more confusing. Of course, there the outfit comparable to a private corporation is usually termed "bureau." The head of this bureau (and perhaps his assistant) is politically appointed and may know little about the work of that bureau. But governmental organizations often prefer the term "department" as rating above that of "division" and this is at times confusing to an outsider. A department head in private industry may be an office manager or foreman and definitely rates as a supervisor. This governmental department head corresponds to industry's division head—indeed, this individual may even rank with a works manager.

The top brass in a governmental organization may be either a "bureau chief" or a "department head." The deciding point here is whether or not he holds a civil service rating. If he does not, he is a political appointee, and everybody knows he is at best a temporary boss. *The highest ranking civil service employee is the real boss of any governmental bureau.* He will be there forever, barring death or malfeasance. This fact has caused many a political appointee a violent series of headaches, until he discovers who really is running that bureau or "department."

In most governmental organiza-

"In order to discuss intelligently the transition from supervisor to an executive, it is well to utilize standard terminology."

". . . most companies make a practice of paying any supervisor more money than is received by anyone reporting to him."

tions the civil service tycoon is *head of a department.* To him reports a number of "division heads" who are of much less importance, and who definitely rank as supervisors. This fact is confusing; then you appreciate that the "Post Office Department," for example, cannot have a division chief as its head.

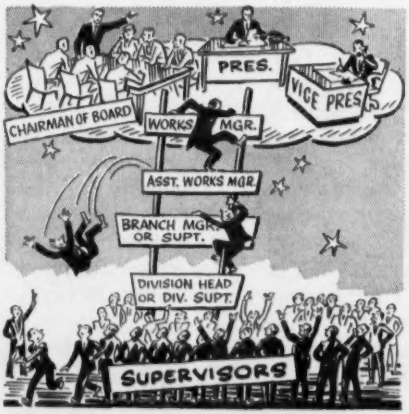
To civil service employees these matters are of paramount importance; just as a "division head" usually outranks by far a "department head" in private industry. This discussion is wholly germaine to the problem we are discussing.

If we limit our consideration to the private corporation, which (thank goodness!) still is the more common type of organization in these United States, we find all of these terms vitally important to the ambitious employee.

Thus, he may go to work for the company in a minor capacity and within a few years find himself put in charge of a small group of workers. This is his first opportunity to show what he can do as a supervisor — when he must achieve results solely by directing the efforts of others.

This is a tough transition for most employees; until then their record has depended altogether on their own work. Now they cannot touch a machine except when teaching some worker a new technique. Some newly created supervisors make the grade; others beg to be put back on their old job. But most companies now make a practice of paying any supervisor more money than is received by any one reporting to him. This makes sense, *as well as allotting the boss special parking space and other perquisites.* A supervisor who makes less money than his subordinates is in a very difficult situation.

(Incidentally, this identical situation faces the engineer in today's industries. Despite all the talk about shortages of engineers, it is not uncommon to find an engineer of some experience receiving less pay than artisans in his department.) I am not criticizing this practice; merely calling attention to it. We also have a terrific shortage of tool-and-die-makers, but little is said of this form of shortage. I know welders who receive $220 weekly in Los Angeles



"The above is a general line-of-promotion . . . which I have found pretty standard."

aircraft plants, where an engineer would have to be a lallapalooza to be accorded six or seven hundred dollars a month. (Of course, all these salaries are before taxes, but engineers who believe in the law of supply and demand wonder what goes here.)

If we may consider the case of an average employee in a metalworking plant of fair size, we may assume he has been around for 20 years as artisan and supervisor before he is considered by management for the truly big job of executive. By then he may well have advanced to the rank of foreman, general foreman, or office manager. He knows his job and that of every employee reporting to him, inside and out.

Now comes the "crucial" period. He is drawing down good money, even after taxes. *He may not wish to advance any further in his company and frankly says as much.* Or, he may be sufficiently ambitious to wish to take a crack at a really big executive job—one that may give birth to a sizeable crop of ulcers, but which also will put his salary and perquisites up among the top men of the company.

"The highest ranking civil service employee is real boss of any governmental bureau."

In the best American tradition he will make a try at the big job—if he can qualify for it. He knows as well as anyone that this is the "path that leads on to fortune," and the logical line of promotion open to him. *He also knows that management rarely offers the big jobs twice to the same man.*

Despite the discouraging fact that American executives are notoriously short-lived (I think very soon top-flight management will take firm steps to remedy this matter), this man would like to be a superintendent or general manager. And management has frankly indicated to him that he is being seriously considered for the big step from supervisor to executive.

How does the supervisor's wife feel about this matter? Well, if she is typical, she wants him to have the new job providing this does not shorten his life expectancy. She has put in a lot of time and tough work helping him get to where he is; she believes he is just as good as the best man in the plant, and sees no earthly reason why he should not get that big job ahead — and of course she has no objection what-

". . . he must develop a group of immediate subordinate supervisors who have implicit faith in his judgment . . ."

ever to being Mrs. General Manager! If she has heard any unfavorable statistics regarding the longevity of top-flight executives, she may well say "This won't happen to *my* man. I'll continue to take good care of him, just as I have during the past 20 years."

What happens next depends in considerable degree upon the prospective executive, his wife, the company's personnel manager, and the big boss himself. If the supervisor and his wife are agreeable to the big step upward, the shots henceforward will be called by the personnel officer and the head man of the corporation. Heretofore, promotion may have been a single matter; now it can become exceedingly complex.

Now management is selecting a man who can decidedly influence company policy, who must meet the biggest men in his own and allied industries, who must possess a personality that will get across in a public address and thus make friends for the company; who is big enough to appear before governmental committees and make a favorable impression, even should he and his company be under attack.

". . . most companies make a practice of allotting the boss special parking space . . ."

At the same time, he must create and maintain harmony among employees numbering perhaps in the thousands; men and women he almost never contacts directly. Specifically, he must carefully direct the efforts of three or four, or a dozen, high-ranking supervisors, keep these men on their toes, yet without ever antagonizing any of them. He must see to it that production in his division never slumps off, but that the morale of the employees remains high, no matter what. *He must also be big enough to deal, whenever necessary, with tough representatives of labor unions, maintain friendly relations with his fellow executives, and of course remain on good terms with the big boss.* Quite an assignment.

Somehow he must develop a group of immediate subordinate supervisors who have implicit faith in his judgment, who are forever abreast of the latest developments in methods and machines, and who may in turn be depended on to keep the plant at all times properly staffed and equipped. He must learn how to crack down on a shirker, and how and when to praise. He

". . . the executive can readily create unfavorable public relations in his dealings with customers . . ."

must never be swayed in his judgment by a handshaker, and he must never fail to defend the people reporting to him when these are criticized by anyone, within or without the company.

Obviously these are not easy chores, and it is not surprising that management is going to look this fellow over pretty thoroughly before entrusting him with such increased responsibilities. Without doubt, in the new job he can put the entire company behind the eight ball or make it the most successful organization in its field, and do these things in a matter of hours.

But this is by no means all. Corporations and governmental bureaus which have employed a supervisor continuously for 20 years suddenly may perhaps become extremely cautious when it comes to converting this man into an executive.

Until now, the company has been interested only in the man's ability to handle men (and women) and get out production without creating ill-feeling or ill-health among the workers. Production, of course, is of paramount importance; morale and accident prevention may have a lot to do with good labor relations and must continue to be emphasized.

But the executive's field will become infinitely wider than this. He can readily create unfavorable public relations in his dealings with customers, with the executives of various other corporations, and with powerful governmental officials.

Because of this fact, management will study most carefully the supervisor's 20-year record in regard to a number of factors that are now suddenly extremely important. Also, if a firm of management consultants happens to be employed, it may be that these experts will have ideas of their own in assisting management to determine that the right man is selected for the executive job.

In instances, both management and these consultants will come up with a unanimous, unpleasant decision: "There isn't a single supervisor in our company who is fitted for this job." This situation may be nearly tragic, and may not be altogether the fault of the supervisory force. Management appreciates it has long had a definite responsibility for developing a number of the right type of men in its supervisory

"He may not wish to advance any further in his company and frankly says as much."

"Bringing an outsider into the company as a high-ranking executive is risky business."

force—men who demonstrate specific potentiality as executives.

This responsibility goes right down the line. In some companies a supervisor who is being considered for promotion to executive rank will say, "But there is no man in my organization who can take my place." *This supervisor instantly ceases to be considered as potential executive material.* Every supervisor *and* executive knows he must develop a capable "second man" as soon as possible. If none exists, he must ask the personnel department to go out and get one.

Bringing an outsider into the company as a high-ranking executive is risky business. I have cited one exceptional instance when this action worked; I could cite a score of instances when such action caused nothing but friction, regardless of how good a man the outsider happened to be. A group of unhappy, frustrated supervisors can make a lot of trouble for a new executive from outside.

"He must be big enough to deal with labor unions, fellow executives, and the boss."

This is a natural occurrence. All of these supervisors feel that one among them should have been chosen for that big job; they have been working together as a team for many years, perhaps decades; now they are going to find it imperative to take orders and no doubt readapt their ways of doing things to suit a strange boss from "outside." Only an exceptional outsider can be successful in winning the wholehearted cooperation of these particular supervisors.

But when the new executive is to be selected from the existing supervisory force there will yet be many obstacles for him to overcome. The least of these may be any feeling among his brother supervisors that perhaps one of them, rather than himself, should have been chosen for the big job.

In some corporations the man whose experience record marks him as the logical choice for this big promotion finds himself up against a series of hurdles the like of which he has never experienced when moving smoothly up the ladder, perhaps all the way from artisan to general foreman.

Without attempting to pass judgment on the worth or advisability of these obstacles to be overcome, let us list a few: First, despite 20

years of satisfactory service, management may decide the potential executive must demonstrate that he possesses genuine administrative attributes, and that he does not possess any hidden or unsuspected weaknesses which would be ruinous to the company, once he has been entrusted with a considerable amount of managerial authority.

If we may assume that management, and particularly the personnel department, has not been able to make up its mind about this supervisor during 20 years of daily association with him, *it is possible he may be asked to take a psychiatric or psychological test (developed by the firm of management consultants), designed to probe into the innermost recesses of the man's soul and determine what goes on there.*

I have talked to many executives who have been subjected to this treatment before being accorded managerial status, and I have yet to find one who could look back on the ordeal with objective equanimity. Most of them, to put it mildly, were still boiling. Their feeling appeared to be that the test was wholly unnecessary, and that any such unpleasant, but repressed urges in their innermost beings probably would have popped out at some time during their 20-year period of service. Obviously, the questions asked in the test (which may have required many hours to answer) were of a type that bring to the surface a lot of latent antagonism, if nothing else. Perhaps this is not the very best method of preparing a newly created executive to take over duties which will call for 100 per cent loyalty to his company and

"This supervisor instantly ceases to be considered as potential executive material."

". . . it is possible he may be asked to take a psychiatric or psychological test . . ."

". . . the wife of the new executive also must be tested before his appointment can be confirmed."

complete faith in the wisdom of his management.

In my own experience as personnel officer, I have never found it necessary or advisable to give such tests, either to supervisors or executives. I much prefer to place dependence on the day-by-day observation of the man's superiors over a long period, together with a careful check of the man's performance record on the job. Above everything, I would want this new executive to feel kindly toward his management, and imbued with the same spirit of loyalty he has displayed during the years that he has worked as supervisor.

The other experience that sometimes comes as a genuine shock to the potential supervisor also may result from advice given management by a firm of consultants. This occurs when some advisor decides that *the wife of the new executive also must be tested* before his appointment can be confirmed.

"With the difficulty of securing help in preparing a formal dinner . . . it will be a miracle if she can impress her guests."

The reasoning here appears to be that the "little woman" may well become the confidante of her husband and will then be in possession of important company secrets. The question in the mind of the test-maker is *whether or not she can keep her mouth shut* under varying degrees of pressure. Also, just what sort of impression will the little woman make on the firm's customers, should she be called upon to meet them socially.

Such a test as this usually begins with a dinner party, given by the potential supervisor's wife at the instigation of management, where the guests include all the bigwigs of management and their wives. The guests are, of course, the ones who thereafter rate the little woman as to appearance, social grace, and a number of other factors.

If we may assume the wife has spent 20 years taking care of her big lug of a husband, raising a number of offsprings (some of them will yet be teen-agers, and who are expected to be present at the dinner), it may be obvious that the little woman is in for a very interesting evening.

If everything goes off well, she passes *her* test with flying colors. (Actually, she really should receive a diamond medal for this. With the

everything it touches turns to

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"The big step for any supervisor is that from foreman or office manager to superintendent or division head."

difficulty of securing help in preparing a formal dinner for eight or ten, and with the wholly unpredictable behavior of one or more teen-agers to contend with, coupled with the problem of making herself attractive as she prepares such a whale of a dinner, *it will be a miracle if she can properly impress a majority of her guests.)*

But this dinner does not quite complete the wife's test. Thereafter, she may well be invited to a cocktail party at the home of a company executive and determination will be made of her behavior after she has put away three Martinis on an empty stomach, at an hour much earlier than she has been accustomed to drink her solitary cocktail before supper.

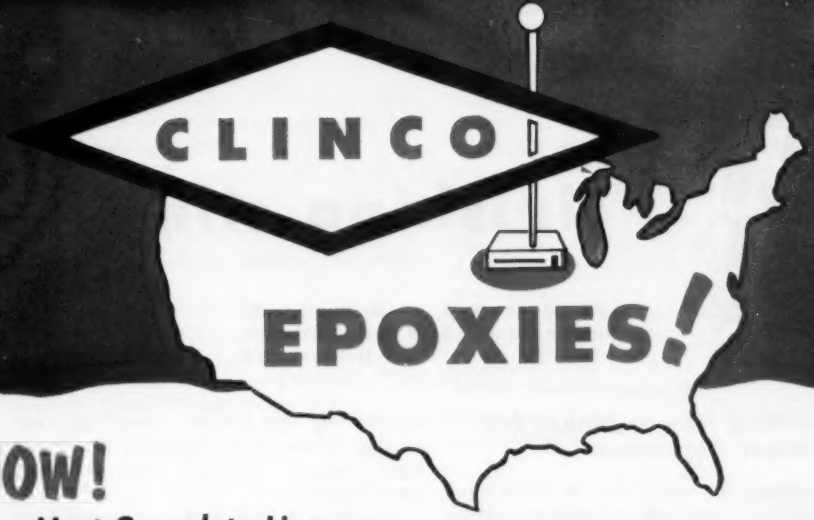
This test, in which the wives of higher executives are to be the judges, is one that is insisted upon by certain management consultants. Apparently the little woman's tongue must not be loosened an iota by all that unaccustomed liquor, *and of course she will receive a number of demerits if she attempts to demonstrate how a native-born Kanaka would perform the hula-hula.* (This actually has happened at such a party.) Furthermore, there are other tests given of the wife's ability to hold her liquor, and her tongue, while refusing to fall on her face or slide under the table. **Please believe me, these are not fanciful tests.** They are becoming more and more common. The little woman has had things fairly easy for 20 years. Now she is to become the wife of an important executive. She has always done everything possible to further her husband's career. She will do her darndest to make the grade here, otherwise she will feel she has let her man down at a most important juncture. But three unaccustomed Martinis on an empty stomach! Perhaps any tests given her husband will be mild compared to this.

". . . she will receive a number of demerits if she attempts to demonstrate how a native-born Kanaka would perform the hula-hula."

The big step for any supervisor is that from foreman or office manager to superintendent or division head. No doubt the added pay, prestige, and perquisites are well worth all the effort that is entailed in passing a series of tests, both on the part of the supervisor and on the part of the supervisor's wife.

(Reprinted from MODERN MACHINE SHOP)

For more data on advertisement on opposite page, circle 329 on Postpaid Card ——→



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Suggested solutions to problems submitted by readers. Send your problem to our Editorial Staff. There is no charge.

Depositing Iron on Nickel Foil by Vapor Deposition

Question: *I would like to place approximately one mil of iron on some nickel foil without damaging the foil in any manner. The foil elements are 5 by 7 by 0.001 inch (or smaller) and only one side has to be covered with iron. Vapor deposition and deposition from iron carbonyl are two processes which would be suitable.*

Do you know of any companies which have facilities for doing either of the above, or know of any other process which would be suitable?

D. W. E.

Answer: In answer to your question about depositing iron on nickel foil by vapor deposition, we are recommending a company that may be able to give you the information you desire. You may be interested in seeing the reprint of an article "Metal Deposits from Gases" published in the November and December, 1956, issues of PRODUCTS FINISHING.

★ ★ ★

Surface Coating to Withstand Severe Weathering

Question: *We manufacture an all-steel swimming pool which must be coated on the surface with a coating that will withstand the most severe weathering conditions found in the United States. This includes the heat, light, water, chlorine and freezing conditions.*

We have found, and our experience has shown, that regular paint flakes off and that, undoubtedly, a quality chemical component such as a vinyl coating of approximately 0.60 thickness is what we should have.

Please advise where we can find out who can supply us with the proper equipment and facilities to apply this coating.

L. P. S.

Answer: The names of companies who can advise you concerning the proper type of coating can be found on Pages 118-122 of the PRODUCTS FINISHING DIRECTORY.

Additional names may be found on Page 131 under the heading "Plastisol Coatings."

Suppliers of equipment to apply the coating may be found on Page 115 under the heading "Painting Equipment, hot spray" and on Page 116 under the heading "Painting Equipment, spray."

★ ★ ★

Sealing Parts Prior to Plating

Question: *We are seeking information regarding impregnating or sealing sintered brass parts prior to cadmium*

plating. Are you able to offer any suggestions as to sources of materials for accomplishing this?

W. H. B.

Answer: We are referring you to several companies who can provide you with information on sealing and sealing equipment.

A number of plating supply companies have done work on plating of sintered parts, and therefore we are also suggesting them as possible sources of additional information.

★ ★ ★

Estimation of Costs in Production Painting of Metal Parts

Question: *Is there any basic formula for estimating costs in production painting of metal parts (mainly automotive)—spray or dip and bake? If so, we would appreciate any information you can give us on this.*

F. W. Z.

Answer: I am not aware of any simple formula for estimating costs in production painting. Paint manufacturers, finishing equipment manufacturers and metal treatment chemical manufacturers can all provide basic information for a specific process. Therefore, it would seem logical to contact finishing equipment manufacturers, paint manufacturers and metal treatment chemical manufacturers in that order.

With this letter we are forwarding a copy of the PRODUCTS FINISHING DIRECTORY in which paint manufacturers are listed on Pages 77-80, and 118-127. Finishing equipment manufacturers are listed on Pages 84-86. Manufacturers of phosphatizing materials for treating metal prior to painting are listed on Pages 127-129.

Your basic decision will be between spray finishing and dip finishing, since other costs will be more or less consistent for any type of paint finish or combination of finishes you plan to use. Your choice between spray and dip methods will be based on the shape of the parts which you must process, the inspection standards, or quality standards, with which the final finish must conform, and the hourly production which you desire.

Most finishing equipment service engineers will be able to advise you rather quickly regarding the method most desirable for your manufacturing conditions.

★ ★ ★

Clear Wrinkle Finish

For some time we have been using a clear wrinkle finish over white lettering on a black surface. The quantities of this material we require are small and perhaps, by reason of this, we are no longer able to obtain the type finish we desire from our previous source. We would like to contact a company that manufactures this finish as a stock item.

W. C. Rieker, Manager
Rieker Instrument Company
1919 Fairmount Avenue
Philadelphia 30, Pennsylvania

Paint manufacturing companies who stock a clear wrinkle finish may wish to get in touch with Mr. Rieker.

★ ★ ★

Non-Metallic-Base Paint to Prevent Carburizing

Question: *We are interested in obtaining products which might prove effective and efficient in stopping-off carburizing gases on certain areas of steel parts heat treated in a controlled-atmosphere furnace. Our present method is to brush on two coats of copper base paint. Although many of our parts are copper plated to achieve selective carburizing, we are present-*

ly interested in other more economical methods.

Can you supply the names of manufacturers which make non-metallic-base paints which can be used to prevent carburizing in this furnace?

O. A. S.

Answer: We suggest that you contact the companies listed on Pages 123, 124 and 125 of the PRODUCTS FINISHING DIRECTORY. We are enclosing a copy for your use. Perhaps these companies will be able to help you select a suitable paint.

★ ★ ★

Tight Adhesion of Red Oxide Primer to Bright Cadmium Plate

Problem: *We have had difficulty in obtaining proper adhesion of a TT-P-636 red oxide primer to bright cadmium plated surfaces which have been processed through a chromate-type bright dip.*

Solution: After considerable investigation and experimental work, we developed the following sequence which produces the desired result:

1. Cadmium plate to the required thickness in a bright cadmium plating solution to take advantage of the higher throwing power and higher usable current densities made possible by the addition of the brightening agents.
2. Rinse and plate for about four minutes in a cadmium plating solution without brighteners to produce a dull matte surface of sufficient thickness on the area to be painted (exterior) so that all of the dull plate is not removed in the subsequent chromate bright dip.
3. Dip in chromate bright dip using no wetting agents.
4. Wipe surface with a lintless cloth, using a solution of 5 per cent phosphoric acid, 50 per cent isopropyl alcohol and 50 per cent water by volume. Do not rinse and allow to air dry.
5. Spray with primer to which has been added 60 oz./gal. of blown linseed oil.
6. Bake both the primer and the subsequently applied wrinkle finish at 250 deg. F. for 30 min.

F. J. K.

★ ★ ★

Chrome-Like Paint

Question: *Recently I read an article about a new paint that resembles chromium plating. Could you supply me with the name and address of the manufacturer of this product?*

F. C. E.

Answer: We are not able to identify immediately the exact product to which you refer. However, we are recommending several companies who supply paint coatings which might serve your purpose.

★ ★ ★

Electropolishing 14 kt. Gold

Question: *We are interested in receiving information on electropolishing 14 kt. gold by methods that would be more effective in obtaining a mirror finish than what is commonly referred to (jewelry industry) as "stripping."*

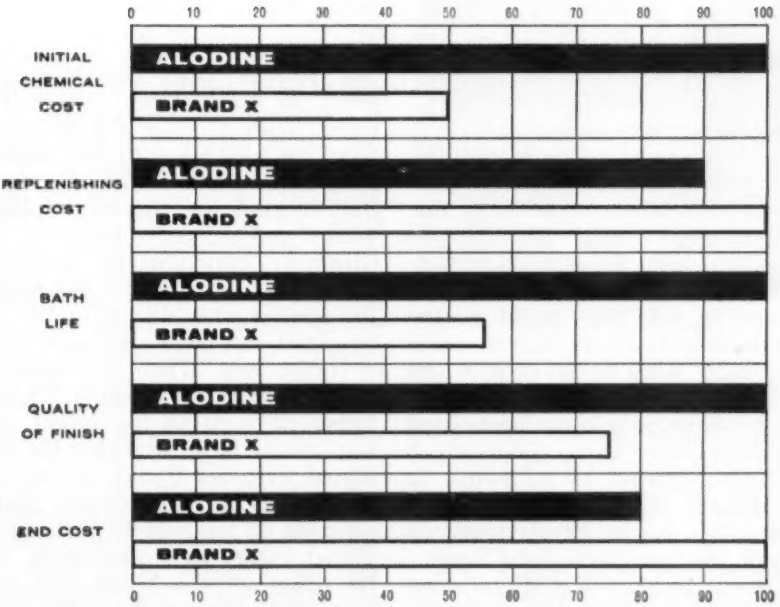
N. F.

Answer: We should like to refer you to the companies listed in the PRODUCTS FINISHING DIRECTORY on Pages 76 and 77 under "Electropolishing Solutions." These companies can provide you with electropolishing solutions and suggest methods of accomplishing the result you desire.

COMPARISON CHART

ACP ALODINE
vs.
A Recognized Competitive Brand

Proving that you get what you pay for—
ACP ALODINE is less expensive in the long run



YOU GET WHAT YOU PAY FOR...*even in chemical treatment processes*

An excellent example of this came to our attention recently. Originally a company treating aluminum purchased a chemical treatment process on initial chemical costs alone—saved 50% in this way. Since installing ALODINE, final costs have shown a decrease of 20%. Bath replacement, supervision and process control, and maintenance costs have all been materially reduced. And the quality of the finish is greatly improved.

Perhaps an analysis of your treatment costs will be equally enlightening. Our technical representatives would be glad to make such a study of your system. Of course you would be under no obligation. For their assistance, contact us at Ambler.

ALODINE is a registered trademark of American Chemical Paint Company

AMERICAN CHEMICAL PAINT COMPANY
Ambler 14, Pa.

CHEMICALS ACP PROCESSES

Detroit, Mich. • St. Joseph, Mo. • Niles, Calif. • Windsor, Ont.

New Chemical Horizons for Industry and Agriculture

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Electroplating: Who Needs It?

By JOSEPH B. KUSHNER, Ph.D.
Director, Electroplating School
Stroudsburg, Pennsylvania

Few people know or realize how much electroplating affects our day-to-day living. Fact of the matter is, from the chromium plated delivery forceps which first guides us into this world to the electroformed copper casket which eventually takes us out of it, it can be truthfully said there is hardly an industry so closely associated with our daily lives, about which so little is known by so many. As an example of what is meant, let us look into a day in the electroplated life of Mr. and Mrs. John Jones.

At 7:00 A.M., the gold and chromium plated alarm clock starts its friendly warning whir. Promptly, thirty minutes later, Mr. Jones is bouncing off the zinc plated steel coil springs that supported his torso so comfortably during the night. With a quick and practiced hand he fumbles with the electric plugs and their brass plated prongs that connect the chromium plated toaster and the coffee maker to the chromium plated utility outlet in the kitchen, so that his yet reclining spouse who always makes his breakfast can have a moment more of quiet rest. Then he stumbles into the bathroom to apply a heavy lather of soap to his bright and wide-awake face. Adjusting his gold plated eyeglass frames so he can see better, he immediately starts scraping off the bubbles with a gold plated razor. In a minute or two he rinses off the blood and soap with water drawn from the chromium plated sink taps.

Moments later he is dressing himself, tiptoeing about the room

Editor's Note: Not all the people who are active in electroplating realize the many uses for plating on the products of our modern civilization. This article mentions several uses of plating in producing better products for today's consumer. It shows how widespread is the need for and use of plating processes of many kinds in as many diverse manufacturing industries.

on size twelves, pulling at the various bronze plated drawer pulls of his chest of drawers to obtain the necessary impedimenta, while his wife slumbers peacefully. He snaps the nickel plated grippers on his shorts shut, zips the nickel plated zippers on his trousers shut and tightens his pants belt one notch in the chromium plated belt buckle (he used to be able to tighten it five but that was long ago!). He puts his collection of gold, silver and chromium plated pens, ball points and pencils in his shirt pocket, then as a last touch of elegance places a rhodium plated tie clasp neatly over his rather conservative fuschia and lemon yellow cravat. But ah—Mrs. J is up now, smiling a cheerful good morning, hurrying off to the kitchen to prepare Mr. Jones' breakfast — lucky man!

Mr. Jones now sits down to the table, looking at his lovely wife through the daily newspaper (made of wood pulp squeezed through chromium plated rolls) which was printed the night before from electrotypes (replicas of set type made by plating). Mrs. Jones, who has squeezed Mr. Jones' orange juice with a chromium plated juicer, now carefully burns the toast in a chromium plated toaster and serves him his coffee as she remarks in dulcet tones, "Dear, I'll need a little cash today."

Mr. Jones graciously pulls out his imitation alligator wallet, manufactured by squeezing ordinary leather under a special die made by electroforming (a process in which a metal part is actually made by electroplating) and hands her a

Dr. Joseph B. Kushner

number of bills, including some from the grocer which have not yet been paid. The dollar bills, which Mrs. J. puts into her dressing gown pocket, were printed from chromium plated, iron electroformed engravings.

Mr. Jones picks up his paper again, places three silver plated teaspoonfulls of sugar in his coffee then slowly raises the cup to his ear (interesting news that day!) when suddenly the cadmium plated siren of the local mill gleefully howls out the fact that it is 8 o'clock.

"My gosh," yells Mr. Jones, "I'm late!" He takes one last gulp and dashes for the door, kissing his wife and turning the brass plated knob at the same time. Mr. Jones tumbles into his Supersonic Eight, "Styled for Tomorrow," with its indium-lead-silver plated bearings, chromium plated cylinder liners and piston rings, not to mention

one hundred and one other plated items, right up to the nickel and chromium plated bumpers and the trimmings . . . And so to work in the nice cool sewer.

Mrs. Jones dutifully puts the dishes in the electric dishwasher with the tin plated insides and prepares for another day over her hot chromium plated stove by removing two TV Dinners from the anodized aluminum shelves (made by electroplating aluminum in reverse) of her deep freezer and placing them on the anodized aluminum shelves of her refrigerator to defrost. She looks ambitiously at the laundry hamper and the chromium plated trim of her automatic washing machine for a moment, then with a sudden change of heart retires to the bedroom for a fifteen-minute beauty nap. A flick of the fingers and her bedside radio is on,

"No harm in adding a little light touch—"

electric current is flowing in and out of the tin-zinc plated chassis, the silver plated condensers and the gold plated innards of the vacuum tubes, and that inspiring program, "Atigone and Abner at the Breakfast Table," is on. Mrs. J. relaxes as she listens to the scintillating conversion.

A few minutes later, around 11 A.M., Mrs. Jones awakes with a start, realizes she has overslept and begins her chore of dressing for the Ladies' Music Club Luncheon. First come the nylons made from a chemical compound pushed through needle holes in platinum plated spinnerets. Then comes the girdle into which she squirms with the undulations of a Siamese temple dancer. "I'll have to cut down on deserts," she says, "I think I'll start tomorrow." Finally, with a sudden pull the darn thing is over the last offending roll of flesh and the squeeze play is finished. If she only knew those steel prison bars (stays, to you!) were zinc plated! And now for the nylon bra, with its zinc plated steel spring wire insides—or didn't you know?

The anodized aluminum hair curlers, dyed in various bright colors, are now removed from her crowning glory where they have been resting all night and she takes herself over to her vanity to apply her face from a variety of glass jars and plastic bottles which have been pressed out of chromium plated moulds. After an hour spent in dressing her hair, she is ready to clothe the rest of her body. About four dresses and three hats later she is putting on her gold and rhodium plated costume jewelry and in a

trice she is out of the door and on her way to the luncheon.

At the luncheon, everyone remarks on how lovely her hair looks. "Oh," she says, "it was nothing at all. I just brushed it and there it was." She wants to admire it too, so she modestly retires to the powder room, carefully studying her coiffure in the mirror. She puts on a little lipstick taken from a gold plated holder, admiring her handiwork in the mirror of her silver plated compact. Satisfied with its appearance, she takes a cigarette out, lights it with her chromium plated lighter, and joins the gay crowd at the luncheon, once again.

The special feature of the luncheon is a high fi recording of Ostendrang's Kleine Nacht Musik (Small Night Music) as performed by the First Chamber Orchestra under the direction of Leonard Bowl. The charming chairlady holds aloft the twelve-inch vinylite record made by pressing an electroformed copper mirror image of the original recording into the soft plastic, and says, "Girls, I give you Ostendrang." At three, after every non-member has had her laundry washed to the symphonic background, the musicale is over.

Mrs. Jones, remembering a pressing engagement she has at home with her chromium plated steam iron and some of her husband's shirts, dashes off with her girl friends — one of them a complete stranger by the name of Mrs. Smith —to find surcease in a neighboring cocktail lounge, over a Zulu Zombie mixed in a beautiful silver plated cocktail shaker.

Meanwhile, back at the ranch, Mr. Jones, who is a plater by trade, is sweating it out over his plating tanks. Hour after hour he has been hanging up large and small racks of metal items into steaming tanks that hold the plating solutions, until his arms feel as though they are falling off. He has been throwing switches and making sure the electricity is going through the solutions and adjusting the current so that the right thickness will be plated out. Right now he is about to start plating hard chromium on some steel plastic moulding dies — the plastic manufacturer pays him to do it because with the hard chromium facing the dies will last ten times as long as without—when he notices the nickel plated wall clock. It is 5 o'clock and he remembers his dental appointment. He has to decide whether to continue working or go to the dentist. He goes to the dentist.

"Rumor has it he scared it to death—"

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"Rumor has it he scared it to death—"

At the dentist's the man in white probes around a while with the chromium plated mirror then says with a friendly grin, "This won't hurt" as he starts drilling with a diamond drill made by plating out nickel and tiny bits of diamond onto a steel shank. After an impression has been made from which an inlay mould can be electroformed with copper, Mr. Jones is unchained from the dental chair and its chromium plated torture gadgets. He heads for home, bushed and ready to call it a day.

Mrs. Jones, who has beat him in by about ten minutes, greets him cheerfully at the door. "Oh what a terrible day I've had," she says. "It's been rough." Hangovers always are. She sits Mr. Jones in front of the television set and says, "Relax dear, I'll have dinner in a jiffy." Mr. J. really relaxes. In fact, he collapses. She dashes back to the kitchen to open a tin plated desert can with a chromium plated can opener, while Mr. Jones, mesmerized by the flitting images issuing from the electroplated doohickies in the picture box drifts off to peaceful slumber. Not much later he is awakened by the sonorous clanging of a rhodium plated ash tray on his head as he is gayly invited to dinner by his little woman.

"So I told her to go soak her head — that I was not going to wash the dern dishes . . ."

Dinner in the dining nook is a charming affair with candles burning in the silver plated candlesticks and the brass plated electric fixture casting a soft glow on food calculated to bring joy to a gourmet's heart. However something must have gone wrong with Mrs. Jones' calculations because Mr. Jones is wistfully looking at the chromium plated electric range. He points to its overhanging festoon of copper plated stainless steel cooking pots and says, "Aren't you ever going to use them anymore?"

Later that night, in the hospital, as Mr. Jones tosses fitfully on the zinc plated coil springs of his little cot after having three stitches taken with a chromium plated surgical needle, Mrs. Jones who has been anxiously sitting by his side sees that he is now conscious. "John dear," she says, "I met a lovely Mrs. Smith today. When I told her you were a plater she wanted to know what plating is and where it's used. Can you tell me John?" John relapses into unconsciousness.

More Information?
For additional information on any product mentioned in this issue, use the READER SERVICE CARD opposite page 128.

FOR FAST, ECONOMICAL
BUFFING AND POLISHING—

ATLANTIC

GREASELESS COMPOUNDS

NEW PLASTIC CONTAINER —
ELIMINATES COMPOUND WASTE
REDUCES APPLICATION TIME

Here's a new waterproof plastic container for Atlantic Greaseless Compounds that saves time and money on buffing and polishing operations. Now, there is no need for operator to spend time stripping away cover . . . plastic container wears away as stick is applied to spinning buff. And, costly waste is reduced since container exposes only the compound that is in contact with the buff. Standard aluminum tube and foil-lined fibre board container available if desired.

Atlantic Compound combines continuous research, high grade materials and rigid quality control of manufacturing to assure you of a product with extremely high uniformity.

Write for free sample on your letterhead.

THE ATLANTIC COMPOUND CO.

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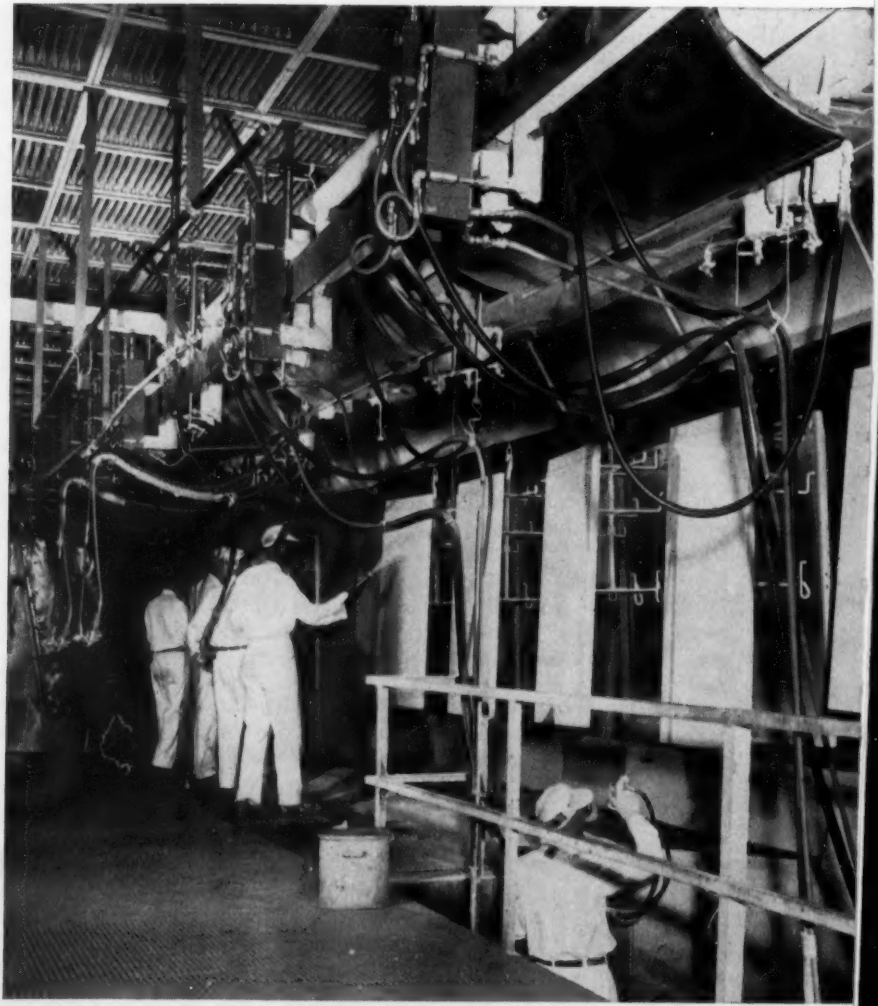
$75,000 a year saved...



Refrigerator doors are sprayed in DeVilbiss water-wash spray booth—or of eight such booths in this modern plant. A battery of DeVilbiss remot paint heaters serves the line; each station is equipped with two DeVilbi heat exchangers and spray guns.

thanks to DeVilbiss Hot Spray

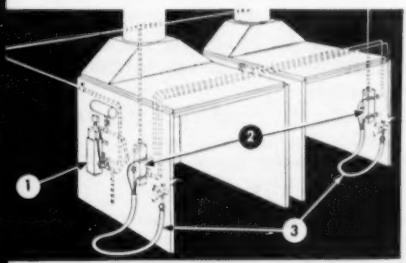
—another example of how the DeVilbiss spray method cuts material costs, reduces spray-booth maintenance

One of the world's largest appliance manufacturers has experienced important material savings as a result of a DeVilbiss hot-spray installation in its Midwest plant.

Although this equipment has been in operation less than two years, the company reports an estimated reduction in primer and enamel consumption of 10% to 15% compared to former cold-spray methods—a saving of about $75,000 annually! What's more, where spray booths once required cleaning 13 times a year, this has now been reduced to only 3 times a year—due to the reduction of spray fog.

Perhaps you, too, can profit from DeVilbiss hot spray. This method offers smoother finishes with less shrinkage; heavier film build; faster drying; and lower spraying pressure with minimum overspray!

Call your nearest DeVilbiss branch office today for complete details. Or write direct.



DeVilbiss hot-spray system is foolproof; adapts to multiple gun hook-ups. Hot water from master heater ① heats paint in exchangers ②; heat-jacketed hose assemblies ③ keep paint hot right up to guns, assuring uniform viscosity at all times at each gun.

THE DEVILBISS COMPANY
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New Equipment, Materials, Processes

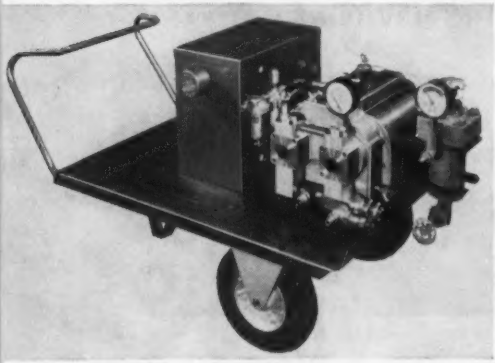
Polishing, Buffing, Degreasing, Cleaning, Barrel Finishing, Plating, Anodizing, Phosphatizing, Baking, Vacuum Metalizing, Chromate Coatings, Paint Finishing, Waste Treatment

Pump for Airless Spray

Description: Pump designated Model AP is designed specifically for supplying the pressure needed in applying paint by Airless and hydraulic spray coating methods.

Airless spray painting makes use of high pressures to atomize coating materials, uses no compressed air in atomization, is said to reduce overspray substantially.

Designed to operate at temperatures up to 500 deg. F., and pressures up to 1500 p.s.i., the recently introduced Nordson pump can be used to supply pressure for applying almost any type of coating material, including plastisols and hot-melt resinous materials.



Nordson Model AP Pump: for Airless Spray

Model AP is capable of delivering material at the rate of 1½ g.p.m., will supply pressure for multiple-spray-gun installations.

Construction Features: Overlapping piston action, automatic speed control, self-cleaning piston rods, throw-away packing glands, chromium plated cylinders, siphon or pressure feed.

Typical Applications: Supplying pressure for Airless Spray and hydraulic spray coating operations; can be used as a transfer pump, or a booster pump; by mounting on a dolly, it can be used in maintenance spray painting.

Manufacturer: Nordson Corporation, Amherst, Ohio.

For more data circle **100** on Reader Service Card

★ ★ ★

Tank Doctors

Description: Plastic cards designed to be mounted near plating tanks list symptoms, diagnoses and cures for a long list of troubles commonly encountered in plating. Separate cards available for copper, nickel, and chromium plating.

Nickel Tank Doctor, typical of the

HOW WAGNER SERVICE CUT PLATING COSTS 20%

Fred Janke (right), Works Manager, to Angelo Comito, Superintendent of Hancock Mfg. Co., Jackson, Michigan: "A major saving in our plating department is the elimination of maintenance of rectifiers. Wagner's suggestion has stopped corrosion and stock replacements."

You've heard manufacturers of industrial equipment talk of their "service"—but all too often service is indefinite, and as time proves, of little real benefit to you. But *some* service is effective and Wagner Brothers' service comprises a good part of the commodity you buy.

For example, when Hancock Manufacturing Company asked several plating equipment manufacturers to submit suggestions for improving the efficiency of their zinc plating department, Wagner Brothers jumped at the chance to demonstrate the real meaning of "service". No other vendor saw room for improvement – but Wagner Brothers' representatives analyzed Hancock's problems and came up with answers which have paid off in the most tangible ways – in better plating, reduced maintenance, more production from the existing automatics and competitive pricing. Here's how:

- Rectifiers were changed from individual 1500 amp. units to 5000 and 6000 amp. Wagner selenium cubicles installed in an adjacent room with control panels in the plating room.
- Solutions were replaced with Wagner proprietaries.
- All buss bars were replaced with buss of greater capacity to increase the productivity of the automatics.
- Racks were redesigned, principally with larger hooks for better handling of internal auto hardware—locks, hinges, window regulators, etc.
- New grease traps were installed to reduce contamination of solutions.
- Checks are made frequently and regularly by Wagner technical men and sales representatives to insure proper balance of solutions.

The changes described above have resulted in improved quality and a complete elimination of Hancock's great problem, the continuous replacement of rectifier stacks. As other problems arise, they are immediately tackled by the Wagner men who check the operation on an average of once a month to cut losses at the source.

So there's the Wagner meaning of "service". Why not call our representative in your area so that you, too, may see Service in Action.

MANUFACTURERS AND PROCESSORS OF ALL METAL-FINISHING CHEMICALS, ANODES, AND EQUIPMENT

432 MIDLAND AVE., DETROIT 3, MICHIGAN

CHICAGO • CINCINNATI • CLEVELAND • INDIANAPOLIS • NEW YORK • SYRACUSE • GRAND RAPIDS

Wagner BROTHERS INC.

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trouble cards, lists such maladies as peeling, blistering, brittle deposits, hazy deposits, poor adhesion, poor throwing power, pitted plate, spotty deposits, tells what causes each, how to remedy situation. Lists total of 43 common troubles, gives specific directions for each. Cards for chromium and copper are similar.

Maker: Joseph B. Kushner Electroplating School, 115 Broad Street, Stroudsburg, Pa.

For more data circle **101** on Reader Service Card

★ ★ ★

Selective Nickel Stripper

Description: A chemically stable solution that will strip nickel from almost any base metal without attacking the base metal is trade-named Ni-Plex.

Formulation and Operation: Solution is composed of one part Ni-Plex A and one and one-half parts Ni-Plex B to five and one-half parts of water. Bath is heated to 175 deg. F., parts are immersed long enough to be stripped. One gallon of the mixture will dissolve 54 square feet of plate of 0.0001 inch depth at a speed of 0.003 inch per hour.

Because the bath is stable, it may be maintained on a stand-by basis. Theoretical saturation can be reached before the bath is discarded.

The bath is reasonably safe to handle, the manufacturer states. It contains no cyanide and no

To page 82→

WHEN YOUR WORK SPEAKS FOR ITSELF— DON'T INTERRUPT!
ALKALI IKE
We feel that our work for nearly a quarter century does speak for itself thru the development of Cleaning Compounds and Drawing Lubricants specifically designed for industry.
Worthy of your attention is—
APEX "749" Cleaning Compound
--designed for use in spray washing machines for removal of chlorinated and pigmented drawing lubricants. Light concentrations, coupled with long solution life, promote its economical use.
Your Inquiry Will Be Appreciated
Apex ALKALI PRODUCTS CO.
A complete line of Cleaning Compounds for the Metal Finishing Industry
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SYRACUSE BOSTON DETROIT ATLANTA PITTSBURGH WEST HARTFORD
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new ALEMITE VERSATAL® paint pump..

for any painting or production line finishing . . . coating or outdoor application!

Twice the power! High-speed, 2 to 1 ratio pump provides paint pressure double the air pressure applied to pump!

Exclusive "Tri-Flow" tube system! Paint is delivered through three separate tubes for volume flow.

Open-frame design! Separates air motor from pump assembly. Eliminates material contamination of motor.

Smoother delivery! Double-action pump delivers on both up and down stroke.

Swivel-bung mounting! Special built-in swivel bung adapter allows drum change without disconnecting hose.

Lightweight! Weighs only 20 lbs. Material outlet, ¾" p.t.

Write for free catalogs and complete information, to: Alemite, Dept. AF-48, 1850 Diversey Parkway, Chicago 14, Illinois

Symbol of SW Excellence

ALEMITE DIVISION
STEWART-WARNER CORPORATION

Pumps paint direct from drum to point of application

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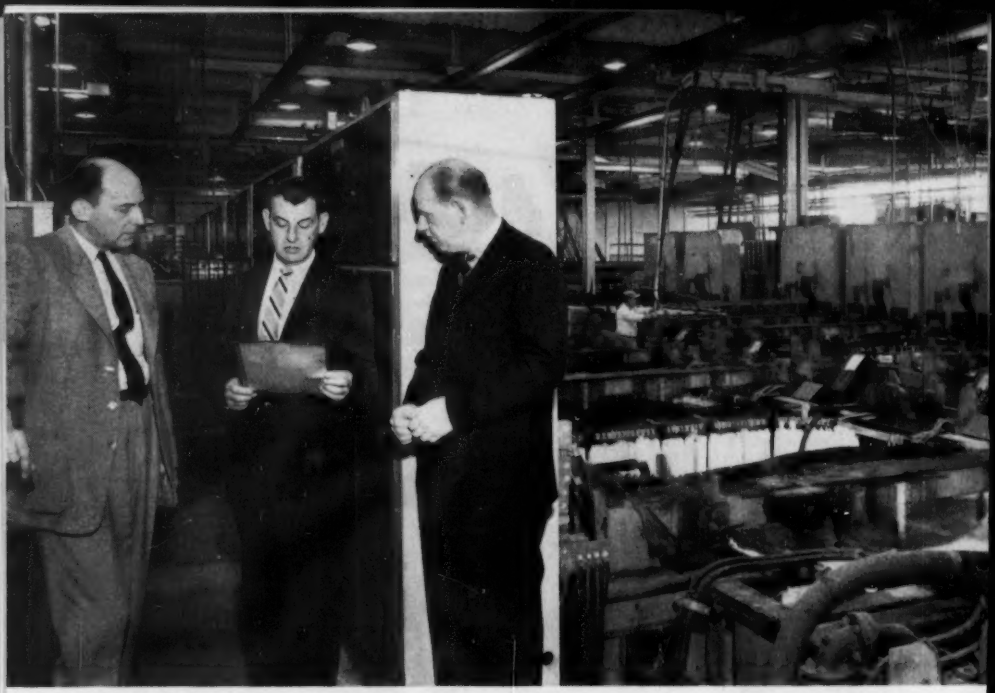
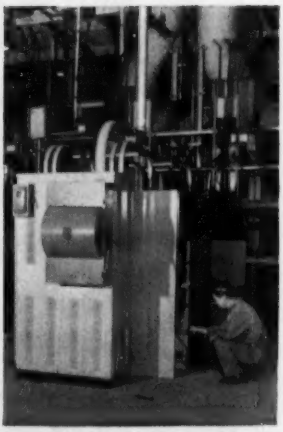


Art Pfeifer (left), Assistant to Rheem's Division Manager, discusses G-E germanium rectifier installation with J. A. Raskin (examining report), Vice President, and Norman Dieball, Electrical Engineer. Mr. Raskin and Mr. Dieball are of the L. H. Butcher Co., west coast subsidiary of Udylite Corp., which installed the automatic bumper plating line.

"General Electric Germanium Rectifiers.....

R. D. Scott, Udylite Corporation Chief Electrical Engineer, who assisted in planning, discusses Rheem's electrical system.

Rheem Automotive's new plant in Fullerton, Cal., has been in operation over a year plating bumpers, other auto parts.



Two 15,000-amp and two 20,000-amp rectifier cubicles, each 15 volts, feature compact construction, floor-mounting.

Light weight and "building block" flexibility of G-E automatic germanium plating rectifiers allow installation on overhead platforms, saving floor space. Inductrol* voltage regulators (left) allow efficient, economical, stepless, and automatic control, are integral part of system.

..tops in automatic plating performance..."

says Art Pfeifer, Rheem Automotive Co., Fullerton, Cal., after year's successful operation

General Electric automatic germanium rectifiers are giving top performance after more than a year's continuous operation;—providing reliable, efficient DC power. So reports Art Pfeifer, Administrative Assistant to the Division Manager of Rheem Automotive Company's new Fullerton, California plant.

The largest installation of germanium rectifiers in the plating industry, this equipment produces 160,000 amperes of direct current at 15 and 18 volts. Each germanium unit is equipped with Inductrol automatic regulating control, making possible automatic voltage or current stabilization. Eighteen units (each rated 5,000 amperes at 18 volts) are mounted overhead to power nickel-plating tanks. Two 15,000-ampere and two 20,000-ampere units, each rated at 15 volts, are floor-mounted.

General Electric germanium rectifiers are lightweight, compact, and allow a "building block" arrangement designed for maximum installation flexibility and ease of maintenance. Floor space for each 5,000-amp unit is 17 square feet—less than 50 percent of a comparable motor-generator. Each unit weighs 5,000 pounds—approximately 40 percent of a comparable motor-generator. Each rectifier cubicle has General Electric's famous hermetically sealed rectifier cell for protection against corrosive atmospheres. All these advantages can be realized at a sizable initial cost saving over motor-generator sets.

The Rheem installation is one of General Electric's many germanium rectifier installations now totaling more than 75,000 kw.

Let your plating agent show you how you, too, can benefit from the economy and efficiency of G-E plating rectifiers. General Electric Co., Schenectady 5, N. Y.

461-16

*Reg. Trade-mark of General Electric Company

Progress Is Our Most Important Product

GENERAL ELECTRIC

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caustic, is non-toxic.

Applications: Can be used to remove electrolytically deposited nickel from copper and brass (parts require only buffing or bright dipping before being reprocessed) silver, steel, iron, zinc, aluminum, and lead. Has little effect on metals other than nickel and cadmium.

Manufacturer: Hanson-Van Winkle-Munning Co., Matawan, N. J.

For more data circle **102** on Reader Service Card

★ ★ ★

Bottom half of the nickel-chrome plated wrench has been stripped by immersion in a bath of Ni-Plex Nickel Stripper. Surface of stripped basis metal is clear and clean, without pitting or rounded edges.

★ ★ ★

Multi-Color Lacquer

Description: Multi-Tex, a multi-color lacquer, minimizes surface defects and produces unusual decorative effects.

Typical Applications: Machine tools, appliances, furniture and store fixtures. Can be applied to wood, metal and composition surfaces.

Manufacturer: Lowe Brothers Co., Dayton 2, Ohio.

For more data circle **103** on Reader Service Card

★ ★ ★

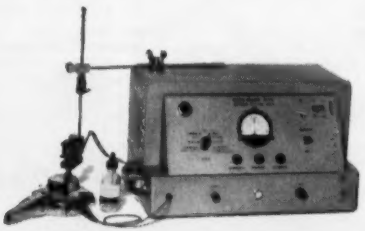
Conveyor Attachments and Carriers

Description: A series of attachments and carriers make Alvey-Ferguson

Now you can test the thickness of COPPER over ZINC DIE-CAST . . . with the KOCOUR ELECTRONIC THICKNESS TESTER

A new test, Copper over Zinc Die-Cast, has been added to the many plating/basis metal combinations Model 955 can test. Now you can test a composite coating of chromium over nickel over copper over zinc die-cast completely. In addition the instrument determines the thickness of heavy or decorative chromium, silver, tin, cadmium, zinc, brass, copper, nickel, lead, and other alloy deposits over various basis metals.

Readings are direct . . . accuracy 90-95% . . . automatic operation . . . virtually eliminates human element. Write for free literature . . . ask for a demonstration or 15 day FREE trial.



KOCOUR CO.
4814 S. St. Louis Ave.
Chicago 32, Illinois

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A 3M Case History Report

33% MORE WELD GRINDING PRODUCTION WITH 3M TYPE "C" ABRASIVE DISCS

MANUFACTURER: American Radiator and Standard Sanitary Corporation

ADDRESS: Buffalo, New York

PRODUCT MANUFACTURED: Heating and plumbing components

3M ABRASIVE USED: Type "C" Abrasive Discs

HOW 3M ABRASIVES ARE USED: Removing excess spot-weld metal from cold rolled steel oil burner housings.

OPERATIONAL DATA ON 3M METHOD: Grit 50 Type "C" Discs, on portable grinders, are used to edge-grind spot-welded areas. Customer tested 3M and competitive discs in own shop by painting over backing to prevent identification, and using discs in actual production.

OPERATIONAL DATA ON PREVIOUS METHOD: A competitive brand of abrasive disc was used for the same operation.

PROVEN ADVANTAGES OF 3M METHOD: Operators ground 48 burner units with 3M Type "C" Discs, compared to 36 with competitive disc—got 33% more production out of the Type "C"

WANT MORE INFORMATION? Send for free manual, "Weld Grinding and Blending". Write to 3M Co., St. Paul 6, Minn., Dept. FH-48.

"3M" is a registered trade mark of Minnesota Mining and Manufacturing Co., St. Paul 6, Minn. Export: 99 Park Ave., N. Y. Canada: London, Ont.

3M Coated Abrasives

TYPE "C" ABRASIVE DISCS

MINNESOTA MINING AND MANUFACTURING COMPANY

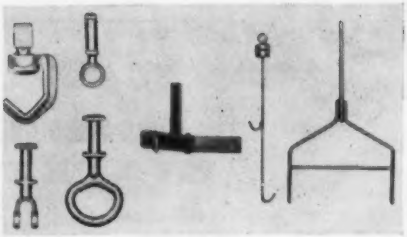
WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

For more data circle 338 on Postpaid Card

overhead trolley conveyors more versatile, able to handle a wider range of parts with greater ease.

The recently introduced attachments aid in handling parts that cannot be hung directly from the clevis attachment of the conveyor. In some cases, attachments are used to suspend the load directly from the trolley or chain. In other cases, fittings to meet unusual conditions are welded to the side bars, pins, or center links.



Alvey-Ferguson Conveyor Attachments and Carriers: to handle a wider variety of parts

Alvey-Ferguson simultaneously introduced a number of carriers that facilitate loading and unloading, give added protection against breakage, and, in the case of smaller parts, enable each trolley to carry a larger load. Carriers in the line include standard and offset tray carriers, multiple-hook carriers, cylindrical - parts carriers, and carriers made from hooks, tongs, racks, baskets.

Manufacturer: Alvey - Ferguson Co., 626 Disney St., Cincinnati 9, Ohio.

For more data circle **104** on Reader Service Card

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more economically . . .
with

CLAIR SURFACE FINISHING MACHINES

Ten different basic CLAIR models to choose from. Write for information on any surface finishing problem you may have.

CLAIR MANUFACTURING CO., Inc., OLEAN, N.Y.

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specify Shell Chemical products for surface coatings

If you make surface coatings—protective or decorative—you'll find the answer to both quality and economy in solvents and resins from Shell.

Shell's family of *solvents* meets or exceeds highest standards, providing complete formulating flexibility. For resistance to abrasion, impact and chemical attack, Shell's *Epon® resins* are proving unsurpassed in a wide range of coating applications.

And, in the manufacture of alkyd resin and ester gum coatings, Shell *glycerine* assures both quality and performance.

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Methyl Ethyl Ketone
Methyl Isobutyl Carbinol
Methyl Isobutyl Ketone
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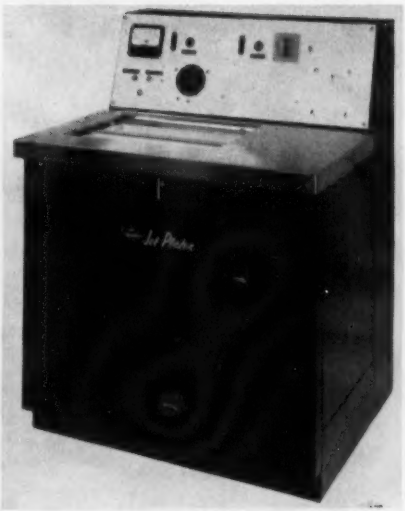
Portable Plater

Description: Redesigned Sel-Rex Jet Plater permits either barrel or rack plating with any cold alkaline solution, most acid plating solutions, on a production basis.

The compact (34 by 28 by 33 inches) machine has all the equipment necessary for high-quality plating built in, including stainless steel "canned" turbine pump, which continuously recirculates plating solution through a filter and back to the plating tank through a vinyl jet-orifice manifold, causing the solution to swirl around the work.

Control board built into unit has dual-scale ammeter, rectifier control, circuit breakers and an automatic timer, which sounds alarm upon com-

To page 90→



Redesigned Sel-Rex "Jet" Plater: compact cabinet contains complete plating plant

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Worklon work clothes resist punishing acids and chemicals . . . actually outlast cotton and wool garments by 50 to 1 as proved in on-the-job tests under corrosive chemical conditions. No need for constant replacement of acid-damaged uniforms! Worklon apparel wears far longer, saves you as much as 93% in work clothes costs!

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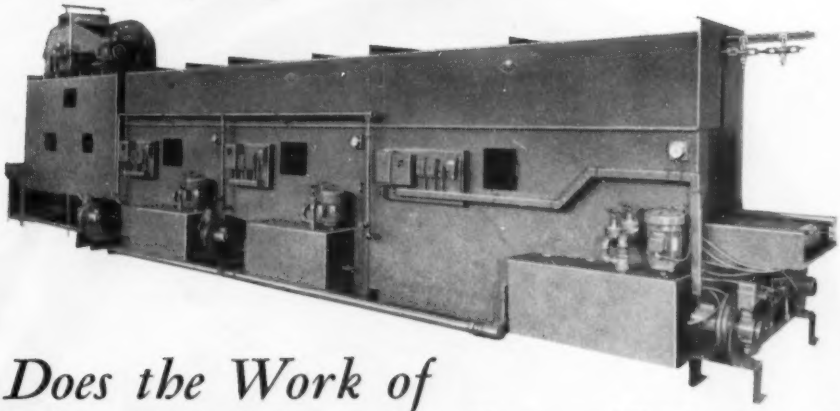
NEW VERSATILE

A-F Cleaning, Phosphate Coating and Drying Machine



Does the Work of Two Machines . . . Costs 40% Less!

High production is only one of the many advantages Alvey-Ferguson has engineered into this new machine.

Both an A-F Overhead Conveyor and an A-F Flat Wire Mesh Conveyor pass through the machine to meet the varying cleaning requirements of different types of stampings as to vertical or horizontal handling for most effective power spray coverage and draining.

In addition, A-F Engineers have provided such important features as vertical immersion pumps to eliminate leakage on floor . . . easy access to spray areas and solution tanks . . . common headers for water and drain — requiring only one connection . . . provision for later insertion of added stages.

This new A-F "Siamese Twin" Cleaning, Phosphate Coating and Drying machine is only one example of Alvey-Ferguson creative engineering in the field of cleaning and finishing metal parts and products. Whatever *your* problem in this field, A-F can help you solve it!

Write today for FREE 28 page illustrated brochure.

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THE SUPERIORITY OF
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A-F *ENGINEERED*
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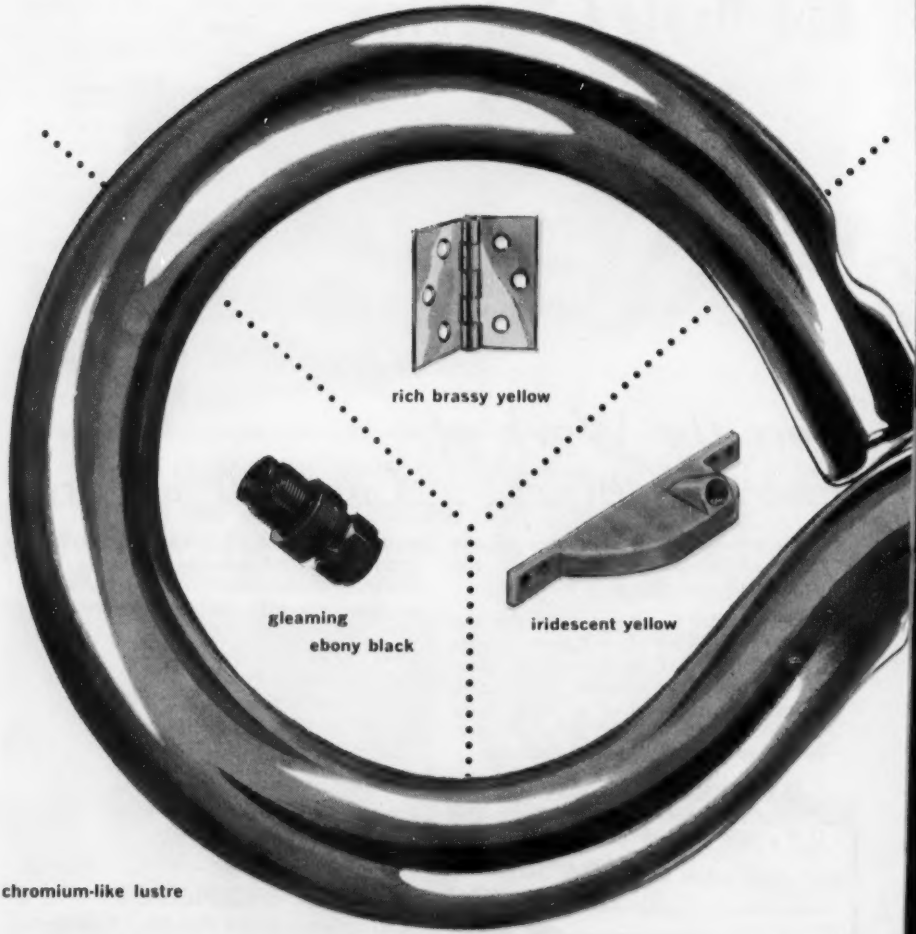
Plant-wide Conveying Systems
Pre-Engineered Conveyors—Roller, Wheel, Belt, Trolley

THE ALVEY-FERGUSON CO., 626 Disney St., CINCINNATI 9, OHIO and Azusa, California

For more data circle 342 on Postpaid Card

Result of chromate treating zinc in ***UNICHROME DIP***

eye appeal



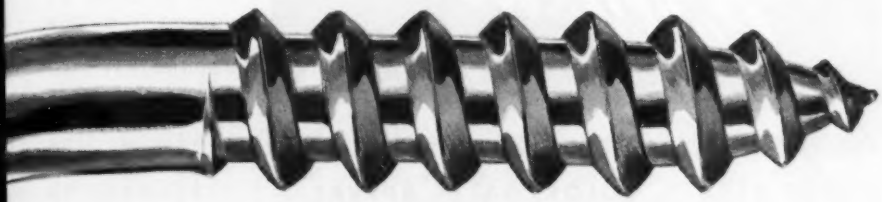
Dyed coatings produce many colored finishes not shown here.

UNICHROME

. corrosion protection ... low cost

ZINC PLATE is a good finish as far as it goes. It can be made to go much further with chromate treating. It can be transformed into a number of outstanding finishes... with extra life, extra eye appeal, extra sales stimulation ... all at little extra cost.

One of the widest lines of chromate treating compounds available, Unichrome Dips can satisfy virtually any requirement ... of product, production method, and pocketbook. Brilliantly clear finishes have been produced



for a material cost as little as 30¢ per 1000 sq. ft. of treated surface! Products can be clad for optimum corrosion resistance in a matter of minutes. And you also get an ideal base for clear, dyed, or pigmented organic coatings.

Along with wide selection and quality finishes goes service. Service from solutions which give good "mileage" Service from M&T engineers who have long experience in metal finishing,and zinc finishing problems in particular. Send for detailed information and handy Unichrome Pick-A-Dip Chart.

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For more data circle 344 on Postpaid Card

pletion of the plating cycle.

Typical Uses: Precision plating of electronic components, specification plating of precious metals, pilot-plant plating.

Manufacturer: Sel-Rex Corporation, Nutley 10, N. J.

For more data circle **105** on Reader Service Card

★ ★ ★

Fume Suppressor

Description: Krome-On, originally developed as an additive that would reduce drag-out and improve covering power of chromium plating solutions, is an effective fume-suppressor as well, the manufacturer states.

Manufacturer: Wagner Brothers, Inc., 432 Midland Ave., Detroit, Mich.

For more data circle **106** on Reader Service Card

★ ★ ★

Zinc Plate Brighteners

Description: Two brighteners for cyanide zinc plating solutions: ARP 32, a powdered addition agent for still and automatic zinc plating; and ARP 53, a liquid addition agent for barrel plating. ARP 32 improves throwing power of a solution, gives good coverage and brightness in hard - to - reach areas, especially on racked parts. Can be used at current densities from the lowest encountered in still plating to as high as 70 a.s.f. Produces fine grained deposits that can be brightened in nitric acid or chromate dips.

ARP 53 improves brightness of deposits in recessed as well as exposed areas of barrel - plated parts. Brightness produced is usually acceptable without bright dipping, but it can be improved to provide additional clarity and luster by dipping in nitric

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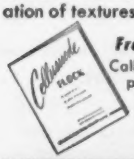
FLOCK
Dampens Vibration... Silences Noises...
ADDS BEAUTY, COLOR, SALES APPEAL

Every year more and more product designers find profitable uses for Cellusuede Flock. The fascinating textures of this versatile finish add new vitality, color, and sales appeal to many products. Or, Cellusuede takes on more enduring — even rugged textures for such varied functions as providing a protective cushion, dampening vibration, and silencing noises. Less expensive than fabric, Cellusuede is made principally from cotton, rayon, or hair fibers, and is available in an almost limitless combination of textures and colors to meet your needs.



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Call on Cellusuede for help with any potential application. Unexcelled facilities are available for flocking test samples. Ask for free bulletin describing profitable uses.

A DURABLE PROTECTIVE COATING WITH A THOUSAND USES . . .

- Can be applied to any surface which will support an adhesive film.
- Easy to apply on an individual or production-line basis — by spray, vibration, or electrostatic process.
- Wide range of textures and colors to suit your needs.

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512 N. MADISON STREET, ROCKFORD, ILLINOIS
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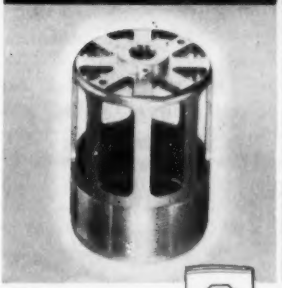
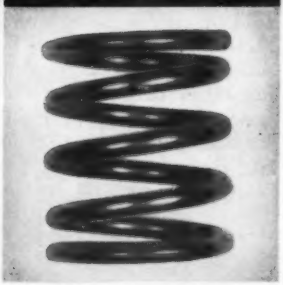
DEBURRING ALUMINUM CASTING



FINISHING CHROME—MOLLY CRANKCASE

DESCALING, POLISHING STEEL ALLOY SPRING



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whatever your finishing problem

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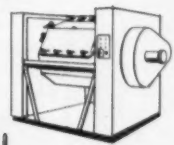
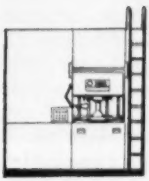
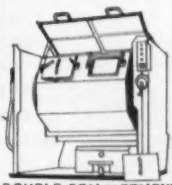


DUAL-ACTION MACHINE



ROTO-MATIC



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If you're hand finishing...take a good, hard look at the dollars you're spending on hand finishing operations with today's high cost of skilled labor. We know Roto-Finish can save you up to 80% of these costs.

If you're barrel finishing already... you'll find Roto-Finish can reduce your finishing costs with the *right combination* of equipment, chips, compounds, and more important... processing experience. What's more, Roto-Finish processing will increase your production, give uniformity and precise dimensional control. We'll be glad to prove this to you *before you invest* in finishing equipment of any kind.

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For more data circle 346 on Postpaid Card

acid or chromate solutions, the manufacturer states. May be added to cyanide plating solutions already containing other brighteners.

Manufacturer: Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md.

For more data circle **107** on Reader Service Card

Filter Pumps

Manufacturer: Sethco Manufacturing Co., 2292 Babylon Turnpike, Merrick, N. Y.

Equipment: SSTI Series stainless steel, self-priming filter pumps.

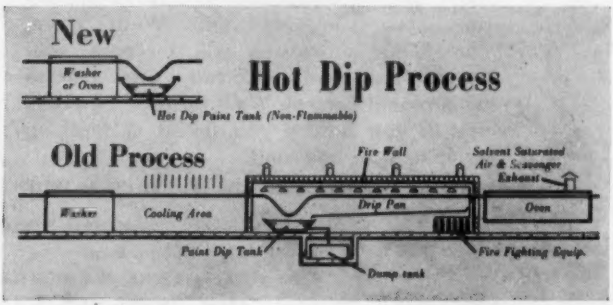
Description: This series consists essentially of a self priming pump and a filter chamber. The pump is furnished with a by-pass valve which automatically opens during filtration when the pressure inside the filter chamber reaches 35 p.s.i. (due to accumulation of impurities). The liquid is circulated inside the pump, completely by-passing the filter chamber. By-pass pressure can be adjusted from 20-50 p.s.i. The motor furnished is ¼-h.p., 1,700-r.p.m, 115-volt, 60-cycle, single-phase, totally enclosed, ball bearing, capacitor start. Motor is wired with three-wire grounding cord, feed-through switch, grounding cap and adapter for two-wire outlets. Materials of construction are such that a wide range of corrosives can be filtered.

Three models are available in this series. All models use the same pump,

NEW
PAINT SAVER

Revolutionary Hot Dip Process.
David-Ludwig Company solves your PAINT FINISHING problems.

This hot dip process has greatly simplified paint dip operations with resultant savings in *paint usage, floor space* and *initial cost.* The process consists of preheating the article and dipping it into a paint operating at 160° F. Leaving the tank the solvent is instantly evaporated from the paint by the heat radiating from the article. This provides *quick drying, uniform thickness* and *drip-free coat.* Since the solvent used is trichlorethylene the system is *fireproof,* providing *safety* for plants and employees. Contact A. D. Ludwig, Vice President, for additional information.



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Manufacturers and Installers of:
Finishing Systems
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14290 Goddard Avenue, Detroit 12, Michigan

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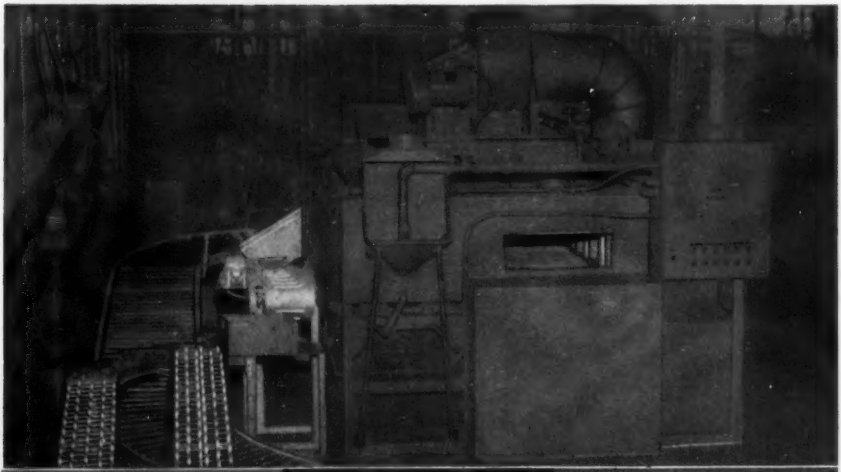
A SINGLE MACHINE does TRIPLE job!

Ransohoff COMBINATION DRUM & CONVEYOR TYPE WASH, RINSE & DRY MACHINE . . .



1 Cleans small parts in drum section

2 Cleans tote pans in conveyor section

3 Cleans large or fragile parts in conveyor section

Installation at Cherry Rivet Div., Townsend Co., Santa Ana, Calif. D. W. Paff, their Plant Industrial Engineer, says, "Our Ransohoff washer has reduced our cleaning time by 30% over our previous method. It also provides an efficient method for cleaning oily tote pans."

Ransohoff Combination Drum & Conveyor Type Cleaning Machine — side-by-side — gives the widest possible use and most efficient cleaning, at the lowest cost. You save on first cost, on installation, on operation and on maintenance!

One operator loads small parts in drum section and tote pans, large or fragile parts in conveyor section. After thorough washing, rinsing and drying, parts and tote pans are returned to operator at loading end.

Ransohoff engineers will gladly survey your cleaning requirements, suggest production-proved methods to cut costs and improve results in your plant. No obligation.

For complete details, write: Ransohoff, Inc., 610 North Fifth St., Hamilton, Ohio.

Ransohoff *The oldest name... the newest ideas*

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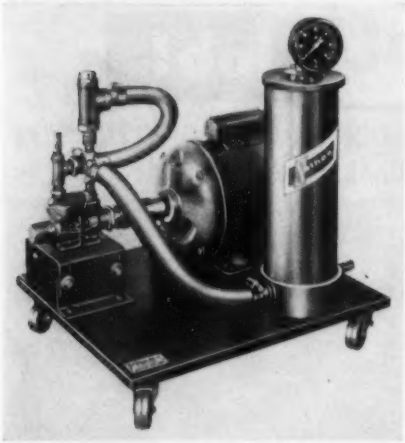

Sethco Model SSTI-10 Filter Pump: filters and transfers almost any corrosive solution

motor and accessory equipment. They differ only in size of filter chamber. The size of the filter chamber determines the quantity of dirt removed before the pressure reaches 35 p.s.i.

Applications: For continuous filtration, in and out of the same tank, transfer filtration or simple transfer of most acid or alkaline solutions. Filter will remove particles down to 1 micron.

For more data circle **108** on Reader Service Card

★ ★ ★

Aluminum Etchant

Manufacturer: American Chemical Paint Co., Ambler, Pa.

Material: An aluminum etchant formulated to ensure a consistently uniform etch pattern and etch rate without scale build-up on tanks and coils.

Description: Gives uniform etch, resists scale build-up, regardless of aluminum concentration of the bath, the

IMPROVE FLOW-COATING WITH BENDIX ULTRA-VISCOSON

Keep paint at the right viscosity for flow-coating appliances, automotive parts or countless other products with Bendix Ultra-Viscoson*. This electronic viscometer automatically controls the addition of solvent to the supply tank as well as indicates and records continuous viscosity readings. Operates on any type of flow-coating equipment. *REG. U.S. PAT. OFF.

- Eliminates "ORANGE PEEL" appearance due to high paint viscosity.
- Eliminates STREAKS due to low paint viscosity.
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- Improves UNIFORMITY and QUALITY.
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Cincinnati Division, Dept. 390, 3130 Wasson Road, Cincinnati 8, Ohio.
Export Sales: Bendix International Div., 205 E. 42nd St., New York 17, N.Y.
Canada: Computing Devices of Canada, Ltd., Box 508, Ottawa 4, Ontario.

Cincinnati Division

Bendix AVIATION CORPORATION

For more data circle 349 on Postpaid Card

"NRC VACUUM COATERS INCREASE PRODUCTION UP TO 50%"

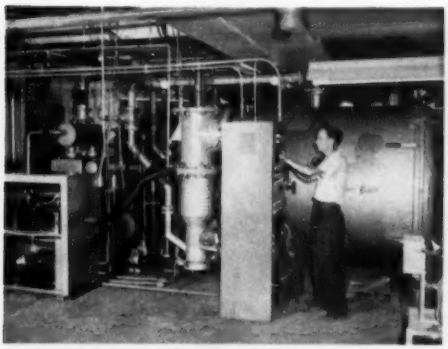
. . . says Jack Selsemeyer
Production Manager, Kent Plastics
Evansville, Indiana

"The improvements in the NRC Vacuum Coaters have helped increase production up to 50% and have reduced rejects materially. Our problems with high humidity have practically been eliminated.

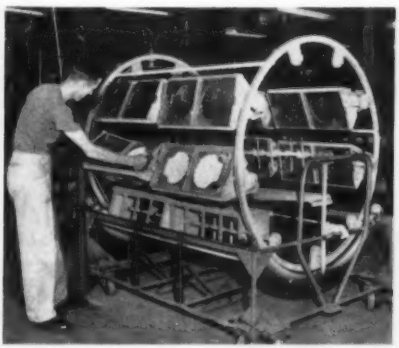
"In dry weather we can complete a cycle in about 15 minutes and in humid weather about 20 minutes. This is about half the time that it took before the latest NRC Equipment was installed.

"In addition, we are getting brighter shots and fewer items are scrapped. Also, with the 5½' x 5' plating chambers, greater capacity is realized. The planetary jigs take better advantage of the space in the plating machine. Three times as many items can be plated as in our old equipment."

You too can avail yourself of the advanced knowledge and experience of NRC Equipment Corp. in the field of high vacuum coating. Write today for information about how we might be able to help you cut your finishing costs and improve quality.



"Fewer pieces have been scrapped and production increased with NRC Equipment. This firm has been a real help to us through their highly specialized knowledge in this field" — Jack Selsemeyer.



Planetary jigs make best use of space. The arrangement permits three times more pieces to be handled per load than in former equipment.

NRC
EQUIPMENT
CORPORATION

NRC EQUIPMENT CORPORATION
Dept. 23-R, 160 Charlemont St., Newton 61, Mass.
Please send me your latest data file on vacuum coaters.
☐ We are interested in coating .....
.....
☐ Please have a representative call.
Name ..... *Position* .....
Company .....
Address .....

For more data circle 350 on Postpaid Card

manufacturer states. Type and rate of etch will not vary with hardness of the water.

For more data circle **109** on Reader Service Card

★ ★ ★

Chromate Coating

Manufacturer: Conversion Chemical Corporation, Rockville, Conn.

Material: Kenvert No. 18, a powdered chromate coating.

Description: Product is dissolved in water, produces various shades of iridescent bronze by varying pH, concentration and time of immersion. Corrosion protection of film produced is ample to meet government specifications. Bath can be controlled to produce films that are hard when wet and which will not bruise in bulk handling.

Uses: Producing iridescent films on zinc, cadmium, copper, brass and zinc die castings.

For more data circle **110** on Reader Service Card

★ ★ ★

Rubber Gloves

Wilson Rubber Gloves

Heavy - duty Wil-Gard Natural Rubber Gloves, in Reinforced and Gauntlet - type Acid models especially designed for rugged industrial service, have been introduced by The Wilson Rubber Company of Canton, Ohio, a division of Becton, Dickinson and Company.

Wil-Gard Reinforced Gloves feature roughened fingers and palms, which provide a secure grip for handling heavy objects. Roughened Firmhold Patches offer longer wear and greater resistance to punctures and snags, and are suitable for steam cleaning or sand blasting operations.

Wil-Gard Industrial Gloves also are made from Neoprene, Latex and Buna-N and Compar Plastic.

For a copy of the Wil-Gard Catalog, write to The Wilson Rubber Co., Industrial Div., 1200 Garfield Ave., S. W., Canton 6, Ohio.

For more data circle **111** on Reader Service Card

★ ★ ★

Heat Exchanger

Manufacturer: National Carbon Co., 30 E. 42nd St., New York 17, New York.

Equipment: A graphite plate-type heat exchanger, style VHUS, with an adjustable and removable elbow connection that makes maintenance easier.

Construction Features: Removable,

Style VHUS Graphite Plate-Type Heat Exchanger: elbow is easier to install and replace

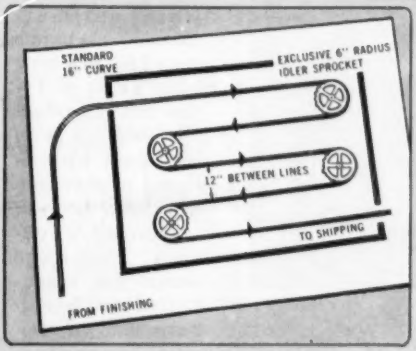
For more data on advertisement on opposite page, circle 351 on Postpaid Card ——→

CHAINVEYOR

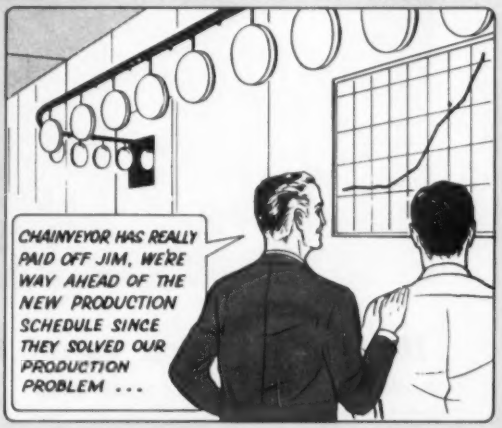
Tough production schedules solved

This company faced a critical conversion problem. To operate profitably it was necessary to increase baking time three-fold with present plant facilities.

Chainveyor modernizes materials handling while conserving valuable floor space. Small radius turns enable Chainveyor to make quick dips to machinery, run in and out of tanks and up over aisles in a minimum of space. Parts are up and out of the way in live storage while moving from process to process.



Solution: Chainveyor's exclusive 6" radius Idler Sprocket made possible five parallel lines 12" apart in the existing oven, thus *tripling baking time.* The complete system moved parts from fabrication through finishing and baking *with no manual handling!*


CHAINVEYOR HAS REALLY PAID OFF JIM, WE'RE WAY AHEAD OF THE NEW PRODUCTION SCHEDULE SINCE THEY SOLVED OUR PRODUCTION PROBLEM ...

Send for your PLANNING FOLDER

by circling your reader service card.

You receive:

- *A handy file folder for keeping materials handling information.*
- *Special illustrated catalog with proven applications, details and representative users.*
- *Explanatory diagram illustrating a typical Chainveyor layout showing component parts.*
- *Plant and conveyor planning grid sheets for preliminary layouts*

QUALITY OVERHEAD CONVEYOR SYSTEMS

CHAINVEYOR®

CORPORATION

Engineers and Manufacturers

DISTRIBUTORS IN ALL PRINCIPAL CITIES

DISTRICT SALES OFFICES • NEWARK CHICAGO DETROIT NEW ORLEANS

MAIN OFFICE • 5618 E. Washington Blvd., Los Angeles, Calif.

bolted elbow connection is said to provide greater strength than cemented connection previously used. It is also easier to install, since the connection can be swivelled to any angle. And, should the heater be damaged in service, the elbow connection can be replaced in the user's own plant.

Uses: Heating or cooling plating, pickling, and other corrosive solutions.
For more data circle 112 on Reader Service Card

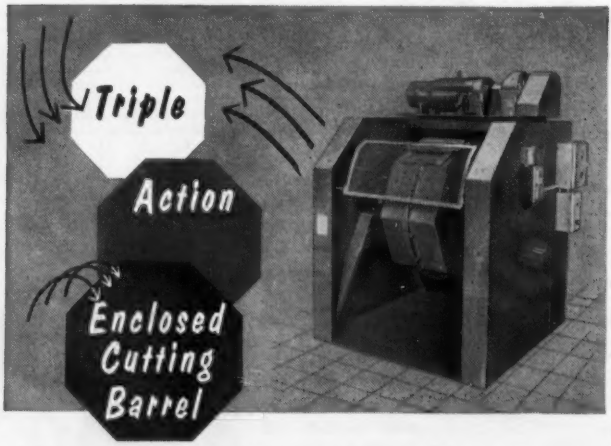
★ ★ ★

Progressive Acid-Regeneration System for Demineralizers

Description: A progressive acid-regeneration system that automatically increases acid regenerant concentration to the cation units of demineralizers at prescribed rates in an infinite number of steps. This system is desirable when optimum cation - exchange performance characteristics and reproducible results with minimum operational supervision are desired.

Normally, cation exchange resins are regenerated with sulfuric acid of specific concentrations. On certain water supplies, however, there is danger of forming inhibited calcium sulfate precipitates during regeneration. Therefore, special precautions must be taken.

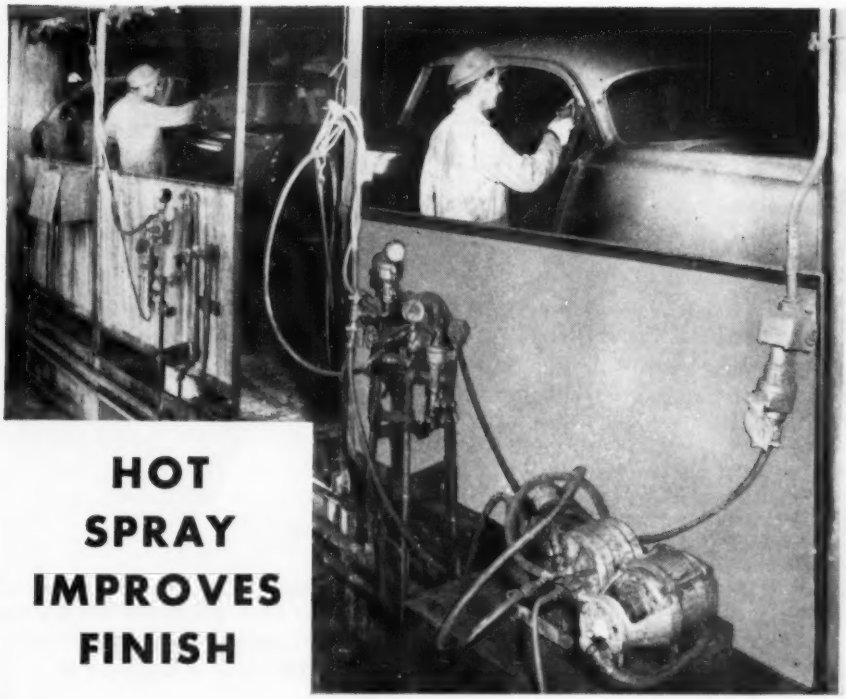
One method of regeneration that helps to overcome this danger is the step-rinse "gradient" or "ascend-



The Finest Cutting Barrel Ever Made

Hartford's great new enclosed barrel speeds deburring, descaling, polishing on screw machine parts, stampings, and castings. Hartford's unique *Triple Cutting Action* produces the highest degree of uniformity . . . faster . . . at lower cost. Extremely compact with every modern feature for efficiency, safety, and cleanliness. Available in 4 and 10 cu. ft. barrel capacities. Write for complete literature.

Hartford
PRECISION BALLS • RETAINERS
BEARINGS • TUMBLING BARRELS
HARTFORD STEEL BALL CO., INC.
123 Jefferson Ave., West Hartford 6, Conn.
For more data circle 352 on Postpaid Card



HOT SPRAY IMPROVES FINISH

Photo Courtesy Dodge Motor Co.

If your job includes finishing, you can do it better, faster and at lower cost with Spee-Flo Hot Spray Systems such as the one pictured above. Consistently, users report: better quality control, increased production and material savings.

In hot spray, controlled heat is applied to the material to maintain constant viscosity. This condition produces a smoother film with less orange peel; gives excellent build and improved coverage. Rejects are reduced. Use of lower atomizing pressures cuts overspray and saves material.

If you'd like to see what hot spray can do for you, Spee-Flo engineers will give an on-the-job demonstration. Write for the complete story of the hot spray method in the free booklet, "Why Hot Spray?"

102

SPEE-FLO

6614 HARRISBURG
HOUSTON 11, TEXAS

For more data circle 353 on Postpaid Card

ing" acid regeneration system, which increases the prescribed rate in an infinite number of steps.

Manufacturer: Graver Water Conditioning Co., 216 W. 14th St., New York 11, N. Y.

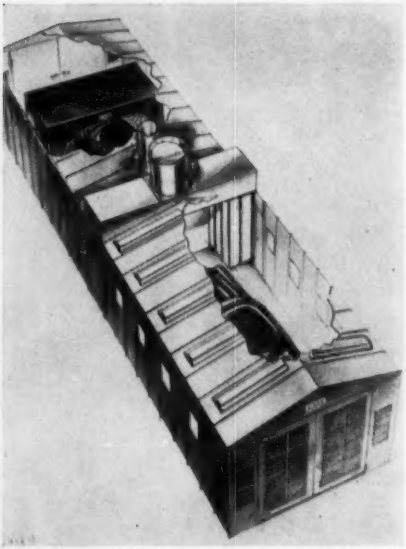
For more data circle **113** on Reader Service Card

★ ★ ★

Automobile Finishing Department

Description: A drive-through structure for painting automobiles includes a dry-type exhausted spray booth and an infrared oven, both in the same tunnel.

The completely enclosed two-compartment structure has spun-glass filters in the door and panels in the front of the spray booth to prevent the entry of dust and dirt. Fumes and



Cutaway View: Binks automobile finishing unit, a spray booth and oven in one housing

. . . SOLUTION TO A FINISHING PROBLEM

ELECTRO POLISH

production pieces faster—better with

Electro-Glo SOLUTIONS

- ✓ Polishes—Deburrs—Levels
- ✓ Saves Time—Labor Costs
- ✓ Improves Product Appearance
- ✓ Sold as a Concentrate
- ✓ Used with Standard Plating Equipment

Electro-Glo electropolishing is the modern, economical finishing method in which a fractional amount of metal is removed rather than deposited as in plating. Electro-Glo comes to you as a concentrate, and you purchase the balance of the solution locally. It is used in conventional plating equipment.

Electro-Glo does a multiple job. Deburring, leveling, and polishing take place simultaneously. Any degree of brightness is easily obtained. Electro-Glo concentrates process Copper Alloys, Stainless Steel, Carbon Steel, and less common metals and alloys.

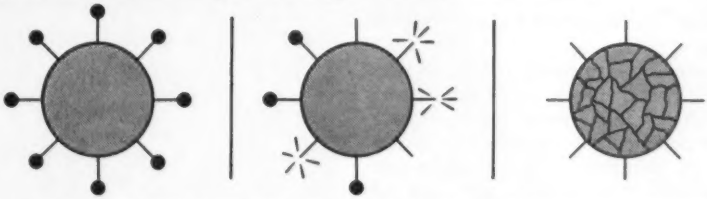
FREE SERVICES

Engineering service available. Sample piece electropolished by the Electro-Glo method without charge. Equipment layout and cost analysis furnished. Special methods and finishes developed. Send for full details.

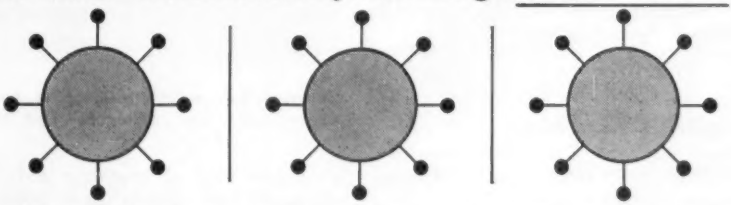
ELECTRO-GLO CO. • 1429 South Talman Avenue, Chicago 8, Ill.

For more data circle 354 on Postpaid Card

Does the solvent you use go "sour," like this?



Use Nialk® TRICHLORethylene and get psp... like this



1. Stabilizers (small circles) protect your trichlorethylene against heat, light, air, moisture, acids, and such active metals as aluminum. At this stage NIALK stabilizer looks the same as the ordinary brand—but NIALK has psp.

2. Ordinary stabilizers wear out during use, leave solvent unprotected. NIALK stabilizer never wears out. Even after repeated distillations and reuse, it's there working. So you never have to titrate or add new stabilizer.

3. When all stabilizer is gone, bath "sours," making a cleanout necessary. Bath may even stain metal parts. Avoid such damage and minimize downtime by using NIALK TRICHLORethylene with psp—permanent STAYING power.

Why you pay less to degrease with Nialk® TRICHLORethylene

You can cut the number of cleanouts of your degreaser when you use NIALK TRICHLORethylene. And you can degrease more parts between cleanouts.

NIALK has a unique stabilizer with **psp** —permanent STAYING power. It's neutral, non-alkaline, non-salt-forming. You never need replenish it.

This NIALK stabilizer actively retards the formation of degradation products—so you can clean your bath easier, faster.

Get proof of NIALK's *cheaper, safer degreasing*—Write on your business letterhead for a resumé of tests made on five leading brands.

Manufacturers of VIRGO® DESCALING SALT, VIRGO ELECTROLYTIC SALT, VIRGO MOLTEN CLEANER.

HOOKER ELECTROCHEMICAL COMPANY
1404 UNION STREET, NIAGARA FALLS, N. Y.

HOOKER CHEMICALS PLASTICS

DUREZ® PLASTICS DIVISION
NIALK® CHEMICALS
OLDBURY® CHEMICALS

Sales Offices: Chicago, Ill.; Los Angeles, Calif.; New York, N. Y.; Niagara Falls, N. Y.; Philadelphia, Pa.; Tacoma, Wash.; Worcester, Mass. *In Canada:* Hooker Chemicals Limited, North Vancouver, B. C.

For more data circle 355 on Postpaid Card

overspray are removed by an integral exhaust system.

The drying compartment is heated by 132 sealed beam infrared lamps with built-in reflectors. Enamel and lacquer finishes can be cured or dried within 30 minutes or less. Lamps are divided into four banks, any one of which can be used individually.

Manufacturer: Binks Mfg. Co., 3118-40 Carroll Ave., Chicago 12, Ill.

For more data circle **114** on Reader Service Card

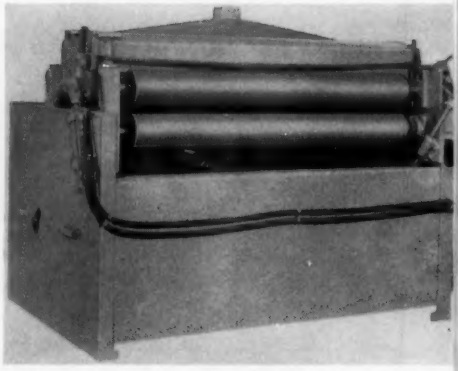
★ ★ ★

Polishing Machine

Manufacturer: Timesaver Sanders, P.O. Box 7446, Robbinsdale Station, Minneapolis 22, Minn.

Equipment: Model SPL abrasive belt polishing machine.

Features: Automatic belt tracking, a simple way of tracking wide belts; standard feed speeds up to 100 f.p.m.; 34-inch feeding height allows this machine to fit into conveyorized production setups easily; available in 24-,



Abrasive belt polishing machine by Timesavers, Inc., has automatic belt tracking

Bond® TACK CLOTH for a SPECK-FREE FINISH EVERY TIME!

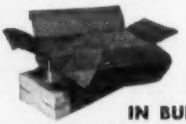
SAVE TIME AND WORK WITH BOND TACK CLOTHS — NOW AVAILABLE IN HANDY ROLLS OR CUT BULK—WHITE OR GOLD —IN FOUR DIFFERENT TYPES OF CLOTH

Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36" wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up! The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" or 9" x 18" for ease of handling. ALL BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free, and Wax-Free. Gives a sparkling speck-free Finish every time. Clean and Sanitary. No waste. Choice of Standard, Extra Tacky or Less Tacky.

IN ROLLS

Cut off any size piece to use as needed.



IN BULK

Cut and folded. Ready to use.

TRY THEM AND COMPARE RESULTS.

Samples Gladly Sent Upon Request.

Bond® CHEMICAL PRODUCTS CO. 2639 N. CLYBOURN AVE. CHICAGO 14, ILLINOIS

"The Tacky Wiper Specialist"

ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES—144 TO THE CARTON.
A WARRANTY OF SATISFACTION IN EVERY CARTON.

For more data circle 356 on Postpaid Card

CLEANING VERSATILITY by Cincinnati

Combines

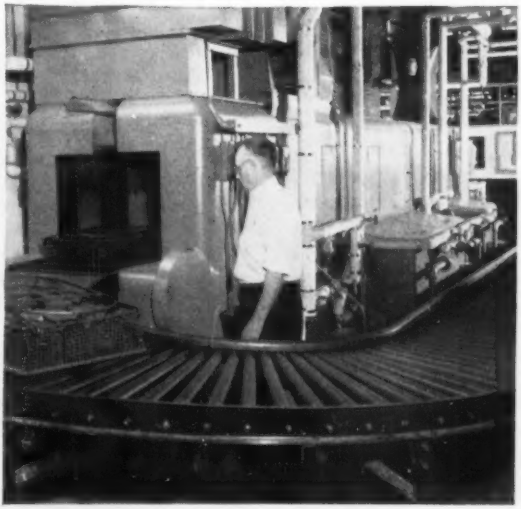
Belt Conveyor and Monorail Conveyor

- Washes
- Rinses
- Rust Proofs
- Dries

Processes

- Steel
- Cast Iron
- Brass
- Aluminum
- Stainless
- Stampings
- Castings
- Screw Machine Parts
- Die Castings
- Machined Parts
- Forged Parts

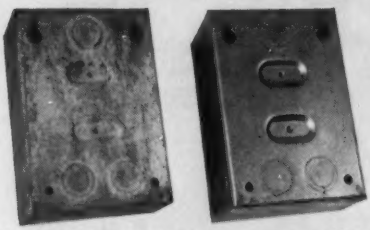
In many cases, Cincinnati engineers are called upon to design equipment to clean one particular part. In others, they have to come up with a machine that will clean anything in the plant . . . present and future! Installed in the New York State division plant of a noted American manufacturer, the machine illustrated is such a "jack of all trades". It handles all pre-finishing, pre-inspection and pre-assembly cleaning for the complete plant. It's another example of Cincinnati's ability to engineer equipment to a problem and to a budget, too.



What's your problem? Ask for a no-cost, no-obligation survey of cleaning requirements by: **Cincinnati Cleaning & Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio**

For more data circle 357 on Postpaid Card

The BEST Finishes START with STANTITE Primers



Stantite Spraying Primer was used on switch box at right only. Both boxes were sprayed with aluminum synthetic and were exposed to salt spray test for 500 hours. The results speak for themselves.

Stantite Spraying Wash Primer is a two-package, new type rust inhibiting primer that improves the quality of *any* topcoat, air-dried or baked. The formula is concentrated to minimize the settling of zinc chromate. Fast drying . . . exceptional adhesion to ferrous, non-ferrous metals and glass. Prevents "rust creep". Ideal base coat for lacquers, vinyls, alkyds, ureas, melamines, enamels, japans.

Cost saving, too—one-part Stantite, two-parts thinner reduction ratio. No need for phosphating or similar metal treatments. Prompt shipment from stock.

STANLEY CHEMICAL COMPANY
Subsidiary of The Stanley Works
DEPT. D, 1338 BERLIN STREET, EAST BERLIN, CONN.

STANLEY

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS

For more data circle 358 on Postpaid Card

40-, 50-, and 60-inch widths. Full particulars available from the manufacturer on request.

For more data circle 115 on Reader Service Card

★ ★ ★

Compressed-Air Filter

Description: A filter for removing oil, moisture, rust and dirt from compressed air is made of nickel-plated brass to eliminate iron rust and possibility of contamination from the filter itself.

Honeycomb filter tubes available in densities necessary to provide degree of clarity desired.

Flow rates: 50 c.f.m. (free air) at 40 p.s.i.; 70 c.f.m. at 80 p.s.i.; 76 c.f.m. at 100 p.s.i.

Technical literature available from the manufacturer gives complete details.

Manufacturer: Commercial Filters Corp., Melrose, Mass.

For more data circle 116 on Reader Service Card

Aircraft Cleaner

Description: Wyandotte Aerowash, an emulsion cleaner for aircraft, is non-toxic, non-flammable and contains no solvents which affect fish or wildlife (thus lessening the sewage-disposal problem).

Used 1 to 3 with water, Aerowash is sprayed on badly soiled areas, brushed and rinsed with high-pressure cold water. The product is safe on aluminum and on painted surfaces—white enamel and radiation-reflecting paints. It is used for cleaning all exterior aircraft materials including plastics; for cleaning flap wells; and for removing exhaust stains.

This material is qualified under the Syndet MIL—C—25769 (USAF) Specification.

Manufacturer: Wyandotte Chemicals Corp., J. B. Ford Div., Wyandotte, Mich.

For more data circle 130 on Reader Service Card

Elbow-Shaped Spray Nozzle

Description: Installation of spray nozzles is simplified by a recently introduced nozzle that is made with the jet spraying at a 90-degree angle to the body of the nozzle. Since the nozzle itself provides the elbow turn, no additional fittings are necessary where the spray must be directed at a 90-degree angle to the inlet pipe.

Spray Nozzle: 90-degree elbow

Identified as the ½-GA Series, this FullJet nozzle provides a full-cone spray pattern, is available in standard 65-degree angle spray or wide-angle 120-degree spray.

Applications: To provide sprays for washing, rinsing, and cooling equipment. For installations where space allotted for nozzles is limited.

Manufacturer: Spraying Systems Co., 3229 Randolph St., Bellwood, Ill. Data sheet 7790, available on request, gives complete details.

For more data circle **117** on Reader Service Card

★ ★ ★

Test Kits for Chrome Additive

Description: Two analytical test sets for Diamond CPA-1800 Chrome Plating Additive are said to shorten testing time on chromic acid and the additive. Kocour Model CPA Kit is used for determining the concentration of the additive only. It includes a standard solution of the additive and chromic acid, used to check the end point. Kocour Model CPA-CA is a combination kit, used for determining the concentration of the CPA-1800 additive as well as chromic acid.

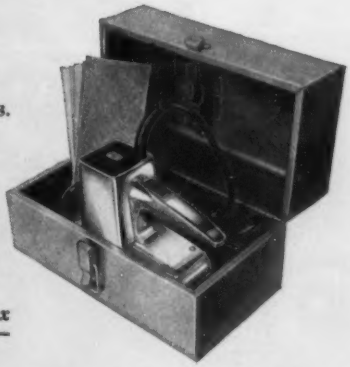
Manufacturer: Developed by Kocour

To page 110→

ENAMELS... LACQUERS

Low Cost... High Quality

More eye-appeal means more sales! Stanley enamels and lacquers will give you top-value product finishes at rock-bottom, per-square-foot application costs. Specially formulated for outstanding adhesion with mar resistance, Stanley enamels and lacquers are available in a wide range of colors. Finish varies from dull to high gloss. Easy application by hand, *electrostatic spray*, hot spray or dip. Coverage is about 650 square feet per gallon, at a one mil film thickness.



Stanley Low-Cost Finishes made this tool box more attractive . . . durable . . . sale-able — and can do the same for YOUR product!

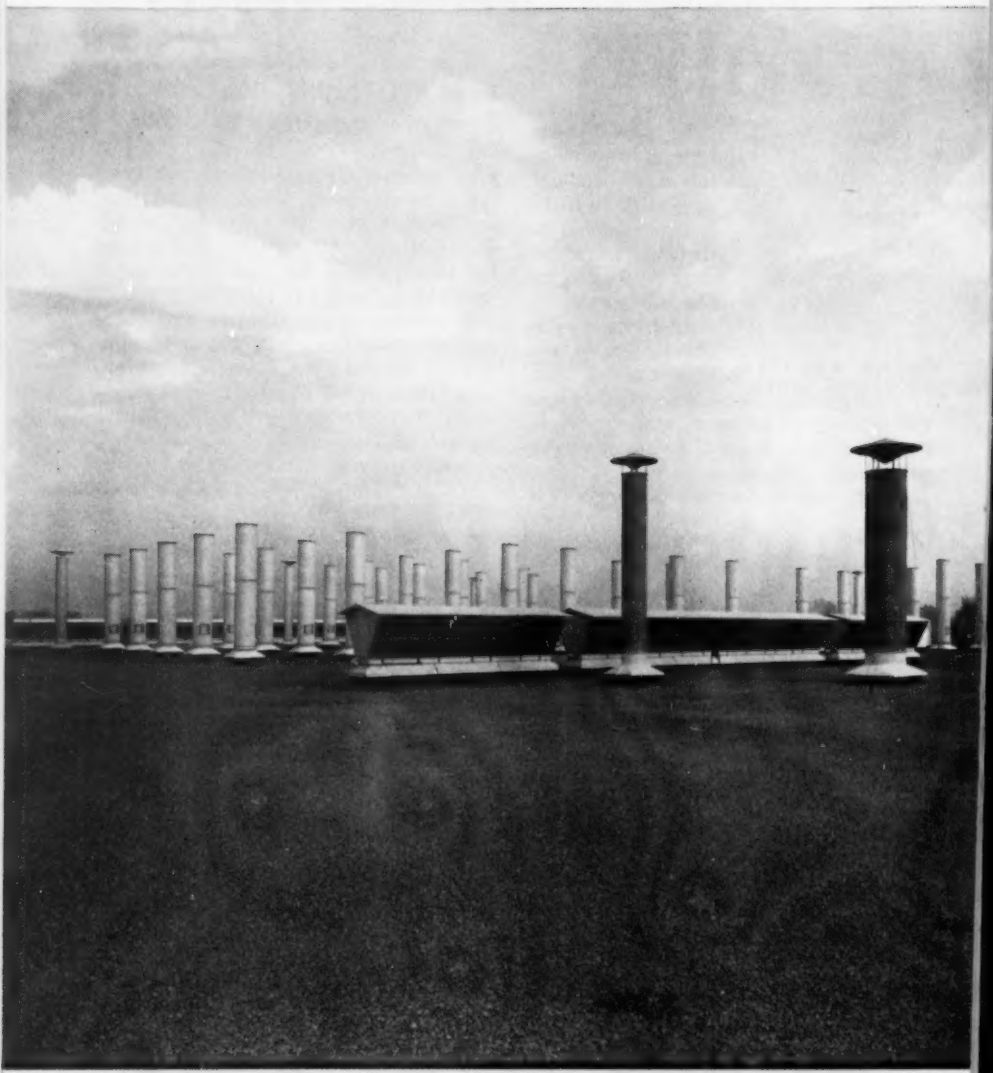
STANLEY

STANLEY CHEMICAL COMPANY
Subsidiary of The Stanley Works
DEPT. D, 1338 BERLIN STREET, EAST BERLIN, CONN.

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS

For more data circle 359 on Postpaid Card

FINISHING SYSTEMS



In the initial construction of the Lincoln-Mercury Plant, the Building Products Division of the Mahon Company supplied and erected the Steel Roof Deck, and the Insulated Aluminum Curtain Walls for the entire Plant, Powerhouse and Paint Storage Building.

. . . the EXPERIENCE that goes into the PLANNING and ENGINEERING of MAHON EQUIPMENT is the item of GREATEST VALUE to YOU!

Air Intakes and Exhaust Stacks of Bonderizing Equipment, Spray Booths and Ovens of a Complete Mahon Finishing System Installed in the Lincoln-Mercury Plant, Wayne, Mich.

Since this installation was completed in 1952, the Mahon Company has installed Six more similar installations for the Ford Motor Company in new plants across the country.

THE R. C. MAHON COMPANY · Detroit 34, Michigan

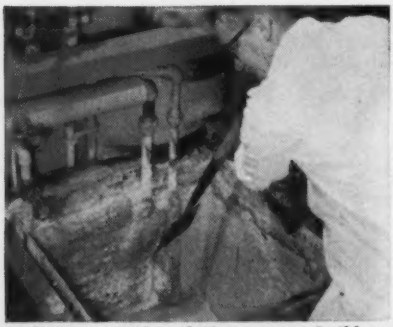
SALES-ENGINEERING OFFICES in DETROIT, NEW YORK and CHICAGO

Engineers and Manufacturers of Complete Conveyorized Finishing Systems; Metal Parts Washers, Metal Cleaning and Rust Proofing Machines, Conveyorized Cleaning and Pickling Machines; Dry-Off Ovens, Cooling Tunnels, Spray Booths, Electrostatic Spray Enclosures, Flow Coaters, Dip Coaters, and Finish Baking Ovens; Core Ovens, Heat Treating and Quenching Equipment for Aluminum and Magnesium, Dust and Fume Control Installations, and Many Other Units of Special Plant and Production Processing Equipment.

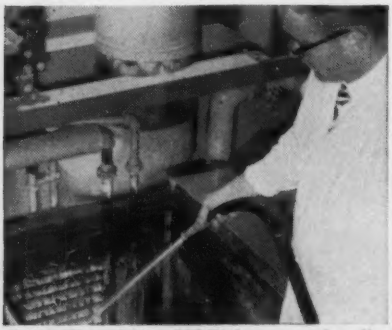
See Sweet's Plant Engineering File for Information and Representative Installations, or Write for Catalogue A-658

MAHON

Here's an aluminum ...reduces maintenance costs... ...MIL-



Ordinary caustic solution causes build-up of scale on tank interior. Scale must be chipped off frequently.



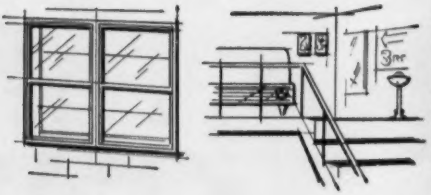
New Wyandotte Mil-Etch suspends dissolved aluminum in solution. No scale develops throughout entire life cycle.

Here's a brand-new caustic-type aluminum etchant that eliminates expensive shutdowns, needless maintenance and labor costs. Mil-Etch keeps dissolved aluminum in solution—prevents it from forming a hard scale that must be chipped from tank walls.

Etches rapidly and uniformly. Economically concentrated, Wyandotte Mil-Etch produces an attractive, uniform, high-quality etch in only a few minutes on aluminum extrusions, wrought sheets and bar stock. You can also use Mil-Etch for deep etching or chemical milling of aluminum alloys.

Easy to use. Mil-Etch is nondusty,

Use Mil-Etch for



etchant that eliminates scale produces a bright matte surface

ETCH !

will not cake in drums; also, no excessive foam or fumes. You can use a tank of Mil-Etch until it becomes "loaded" with dissolved aluminum. Tank dumping is simple – just pull the plug!

Desmutting. For brightening aluminum alloys that turn dark in alkaline etching processes, try Wyandotte 2487. It is safer than ordinary acid solutions, and permits a closer control of the desmutting bath. Being in easy-to-handle granular form, solution make-up and additions are simple.

For full information on how new Mil-Etch and Wyandotte 2487 will solve your aluminum-etching problems, call your Wyandotte representative.

Wyandotte Chemicals Corporation, Wyandotte, Mich. Also Los Nietos, California. Offices in principal cities.

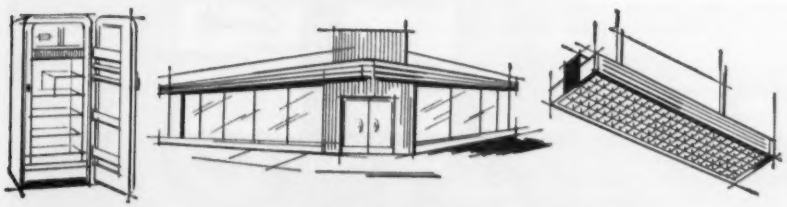
THE BEST IN CHEMICAL PRODUCTS FOR METAL FINISHING

Wyandotte

CHEMICALS

J. B. FORD DIVISION

etching all aluminum surfaces



For more data circle 361 on Postpaid Card

Company, 4814 S. St. Louis Ave., Chicago 32, Ill., and Diamond Alkali Co., Chromium Chemicals Div., 300 Union Commerce Bldg., Cleveland 14, Ohio. Information available from either of these companies.

For more data circle **118** on Reader Service Card

★ ★ ★

Airless Paint Spray Equipment

Description: The Flexaflo Hydra-Airless paint sprayer forces heated paint under hydraulic pressure through a special orifice, a method of atomization that is said to reduce overspray and make it possible to spray paint without a booth.

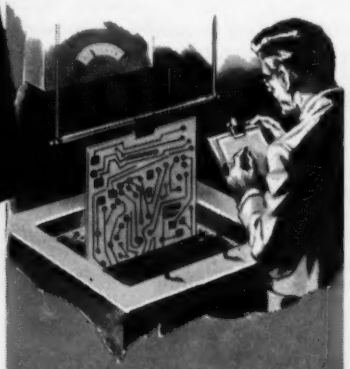
The unit consists of a reciprocating pump, which forces the paint through a paint heater and heated paint hose.

Flexaflo HydraAirless Paint Spray Unit

The paint heater raises the temperature of the paint, and the heated hose

To page 114→

RHODIUM
ELECTROPLATING SOLUTIONS



Technological knowledge acquired through many years of experience, plus special processes and equipment, assure the high quality of our Rhodium Plating Solutions.

Recommended for contact surfaces of switches, waveguide parts and other electrical applications, such as printed circuits...Can be applied in extremely heavy deposits, up to 100 milligrams per square inch.

Rhodium plating provides the advantages of whiteness, lustre and corrosion resistance of a precious metal.

Consult our staff, without obligation, about your specific plating problems.

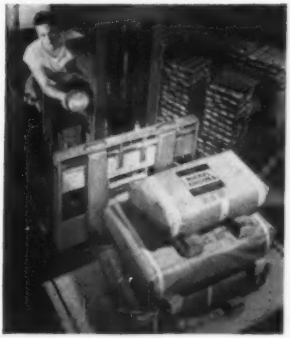
Since 1901

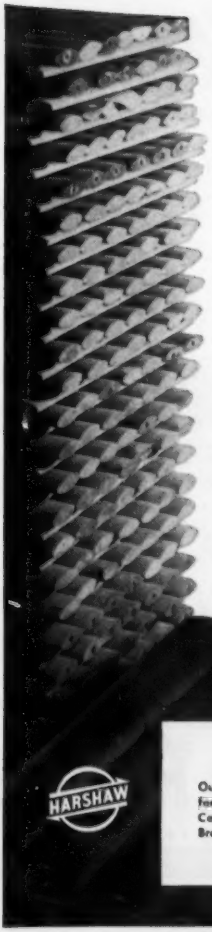
SIGMUND COHN MFG. CO., INC.
121 SOUTH COLUMBUS AVENUE · MOUNT VERNON, NEW YORK

For more data circle 362 on Postpaid Card

Prompt Delivery of any Quantity

HARSHAW
Nickel Anodes
99+%





HARSHAW XXX CAST CARBON NICKEL ANODES are oval 1½″ x 3″ in cross section and are available in any length desired. Weight is approximately 1.1 lbs. per linear inch. They are normally used in dull, semi bright and bright nickel plating baths where the pH is 4.5 or lower.

HARSHAW ROLLED OVAL CARBONIZED NICKEL ANODES are 1¼″ x 3″ in cross section and are available in any length desired. Weight is approximately 1 lb. per linear inch. They are generally used in dull, semi bright and bright nickel plating baths where the pH is 4.5 or lower.

HARSHAW ROLLED OVAL DEPOLARIZED NICKEL ANODES have the same cross section and weight as the rolled oval carbonized nickel anode and are also available in any length desired. These anodes are generally used in nickel plating baths where the pH is 4.0 or higher; they are extremely suitable for such use, as they will corrode well over a wide range of operating conditions.

PACKAGES—Harshaw anodes are wrapped in a fibre reinforced laminated (without asphalt) paper. They are protected from tramp oils, dirt and grease and remain clean until used. The possibility of such contaminents being introduced into the plating solution from anodes is thus kept to a minimum.

Harshaw anodes are shipped in compact packages which feature built-in skids and facilitate quick handling by mechanical or hand trucks. The packages stack easily and quickly. Also, no deposits or returnables are involved with this type of packaging.

Harshaw Nickel Anodes are readily available and prompt shipment of any quantity will be made upon receipt of your order.

Recasting Service

Our foundry facilities are available for recasting nickel anode scrap. Contact your nearest Harshaw Branch for further details.

HARSHAW

THE HARSHAW CHEMICAL COMPANY

1945 E. 97th Street • Cleveland 6, Ohio

CHICAGO, ILLINOIS • CINCINNATI, OHIO • CLEVELAND, OHIO
DETROIT, MICH. • HOUSTON, TEXAS • LOS ANGELES, CALIF.
HASTINGS-ON-HUDSON, N. Y. • PHILADELPHIA, PENNSYLVANIA
PITTSBURGH, PENNSYLVANIA

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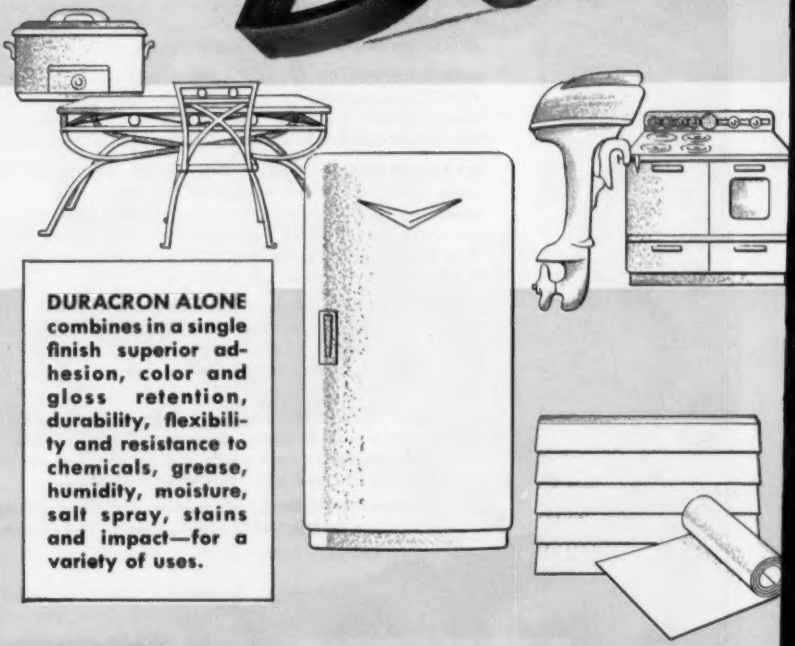
One coat does the work

AMAZING NEW

DURA



DURACRON ALONE combines in a single finish superior adhesion, color and gloss retention, durability, flexibility and resistance to chemicals, grease, humidity, moisture, salt spray, stains and impact—for a variety of uses.

PITTSBURGH® PAINTS

SYMBOL OF SERVICE FOR SEVENTY-FIVE YEARS

75 ANNIVERSARY 1883–1958

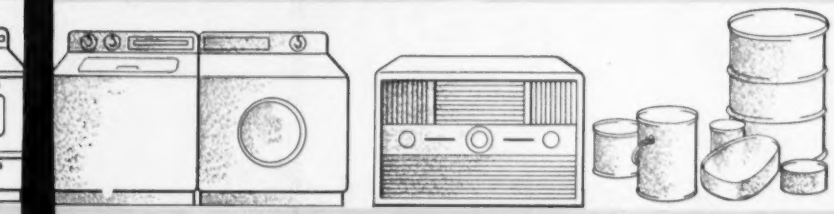
PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

f two . . . with

CRON

THERMO-SETTING ACRYLIC ENAMEL



Now . . . tailored to your finishing needs!

Today's biggest news in finishes is the development of amazing DURACRON in a variety of formulations for many end uses. Since its introduction, this revolutionary chemical composition has convincingly demonstrated its superiority to ordinary baking enamels. *One coat does the work of the conventional two-coat finishing system.*

• **Now . . . DURACRON** is made available in a wide range of properties to enhance sales appeal and utility of products on which it is used. It can be sprayed, dipped or roll-coated. It can be cured at lower temperatures. And it can be used either as a one-coat enamel or as a topcoat with various primers. Mail coupon for more information.

Mail this coupon today for new book

Pittsburgh Plate Glass Company, Industrial Finishes Division, 1 Gateway Center, Pittsburgh, Pa.

Gentlemen: Please send me your new brochure, containing information about DURACRON Thermo-Setting Acrylic Enamel, and how it reduces manufacturing costs.

Name_____

Company_____

Address_____

City_____ **State**_____

For more data circle 364 on Postpaid Card

maintains this temperature until the paint is sprayed. Paint is drawn from a five- or 55-gallon container. The unit is light in weight and can be moved easily.

Catalogs illustrating this unit are available from the manufacturer.

Manufacturer: Spee-Flo Company, 720 Polk Ave., Houston, Texas.

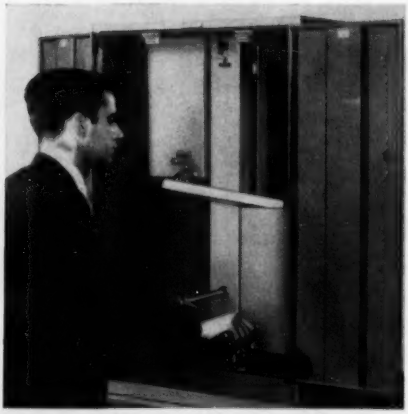
For more data circle 119 on Reader Service Card

★ ★ ★

Sample Coater

Description: The Zahn Sample Coater is an apparatus for dip-coating panels under controlled conditions. Used for studying paints and for small-part production painting.

Principle of Operation: The sample to be coated is suspended in a small tank of paint. This paint is allowed to drain into another tank at a controlled rate, through a valve. Coating thickness is varied by changing the valve opening or by adjusting viscosity of the paint. Unit is calibrated so that results are reproducible. In ef-

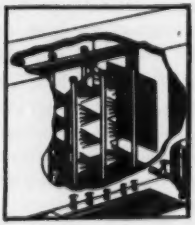


Zahn Sample Coater: controlled painting

TO MAKE YOUR FINISH HOLD FAST

PERMAG 31

Cleans Steel or Aluminum Safely



TO STRIP FINISH FAST

PERMAG 81

Strips Baked Alkyds in Minutes

What's your stripping or cleaning problem? 35 Years of Experience says PERMAG has the answer—Get in touch today.

PERMAG

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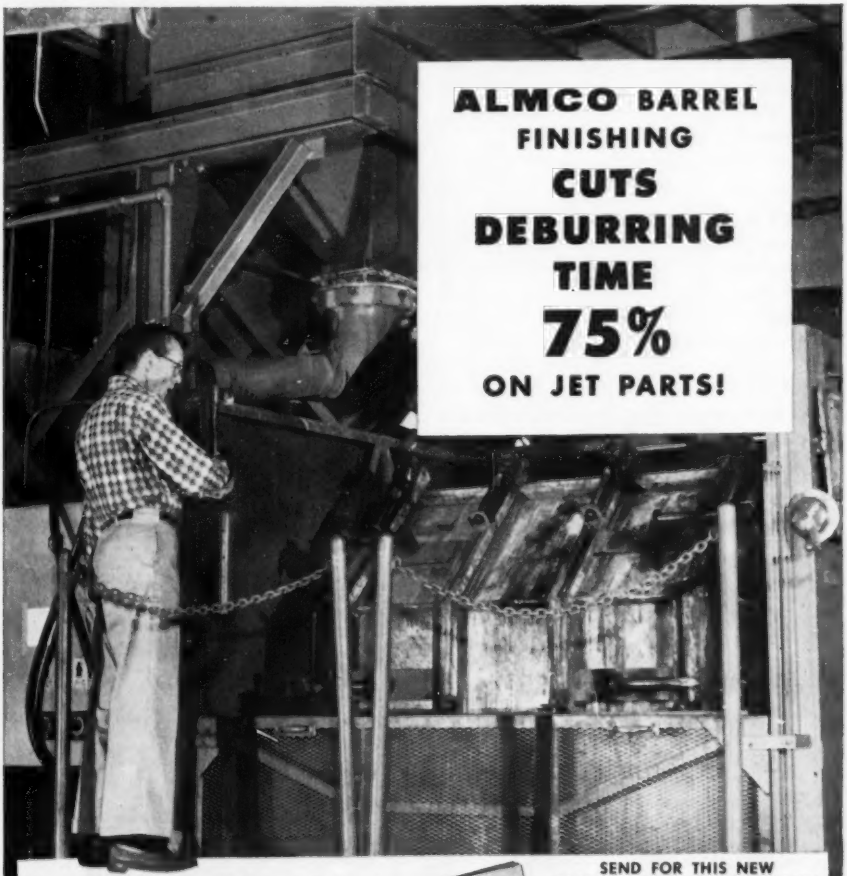
In Canada: Canadian PERMAG Products, Ltd., Montreal

For more data circle 365 on Postpaid Card

See Barrel Finishing In Action At Our Display, Booth 2101, ASTE Show, Philadelphia



ALMCO BARREL FINISHING CUTS DEBURRING TIME 75% ON JET PARTS!

Two giant Almco machines cut deburring time 75% on turbojet engine parts made by a large aircraft engine components maker. In just 2½ hours a barrel load of 14 jet vane and shroud assemblies is descaled, ground, deburred, cleaned and rust-inhibited. Hand deburring, vapor blasting and wash operations are eliminated.

Whether you need a large special machine like this or a smaller ALMCO unit, you can get expert advice without obligation. Ask for an ALMCO engineer to call or send sample parts with specs on results desired.

SEND FOR THIS NEW BARREL FINISHING HANDBOOK
It's more than a catalog! 52 pages of facts, photos, data and cost comparison charts. Write today!

ALMCO
QUEEN PRODUCTS, INC.
84 Marshall Street • Albert Lea, Minnesota
Subsidiary of KING-SEELEY Corporation
Sales Engineering Offices in Chicago, Detroit, Los Angeles, Newark, New Haven and Philadelphia
IN ENGLAND: *Almco Division of Great Britain Ltd., Hitchins, Herts, England*

For more data circle 366 on Postpaid Card

fect, it is a method of carefully controlling the rate of withdrawal of a part from the dip tank.

Manufacturer: Gardner Laboratory, Inc., 5521 Landy Lane, Bethesda 14, Maryland.

For more data circle **120** on Reader Service Card

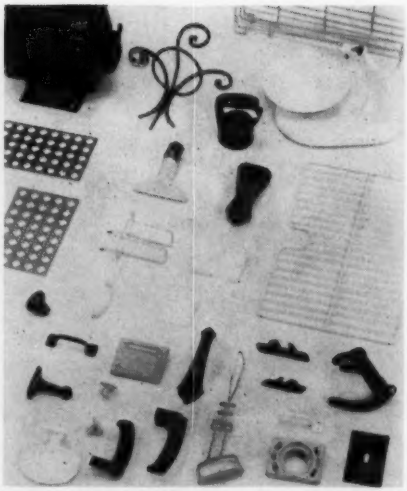
★ ★ ★

Heavy Cellulosic Coating

Description: Heavy cellulose finishes, which can be fusion-bonded to metal parts by the Whirlclad Process are said to have outstanding gloss and color retention.

The manufacturer states that this finish has other desirable properties: good resistance to salt spray, sunlight, wear and chemicals; can serve as a good general-purpose insulator.

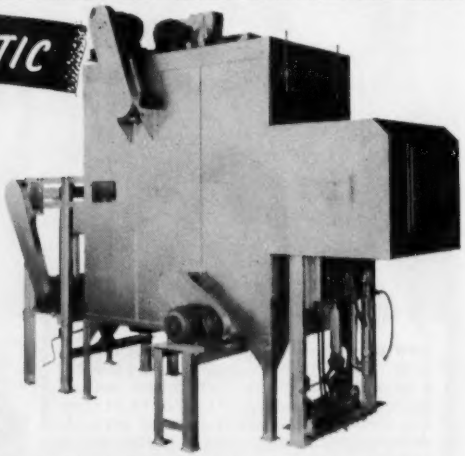
To page 120→



Display of parts that have been coated with cellulosic material by Whirlclad Process

IT'S ALL AUTOMATIC

1-Ground Coat Dips
2-Bakes
3-Finish Coat Dips
4-Bakes
5-Delivers



With but 1 man to feed and remove the work, this Rockwell completely automatic dip and bake oven delivers 24 finished cutlery pieces per minute, ready for assembly.

Conveying, dipping and electric recirculation heating systems are integrated, synchronized and controlled to provide uniform, flawless results.

This is one of many such "package" oven units Rockwell builds for products finishing.

What's your problem?

Cutlery pieces are lowered into dip tanks, drained and baked in this continuous conveyor electric oven. Space—only 42 sq. ft.

W. S. ROCKWELL COMPANY
2028 ELIOT STREET • FAIRFIELD, CONN.

For more data circle 367 on Postpaid Card

A BETTER BACK-UP WHEEL

R57

FOR YOUR ABRASIVE BELTS

45° Standard For Stock Removal

AVAILABLE NOW IN POPULAR 14" DIAMETER SIZES AT BIG SAVINGS

You can get the new R57 RUBBER CONTACT WHEELS at lower prices in 14" Diameter sizes*** due to newly developed production techniques. These new wheels have all the well-known features of the R50 and R54 models—LONGER BELT LIFE . . . OIL RESISTANT RUBBER . . . WET OR DRY OPERATION . . . HEAT DISSIPATION . . . MAXIMUM SAFETY . . . other features. And what's more these wheels have a 30% trade-in value.

***The new R57 and the R50 and R54 contact wheels are available in many popular sizes . . . ½" to 22" DIAMETERS in WIDTHS from 1" to 6". Other wheels made to your specifications.

14"

TYPE	WIDTH OF FACE 1"	2"	3"	4"
PLAIN	32.00	34.00	36.00	38.00
SERRATED	37.00	39.00	42.00	44.00

AVAILABLE IN PLAIN OR SERRATED FACE IN ALL DUROMETERS

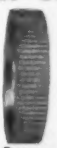
Write for Details

DElta 6-8900

A WHEEL FOR EVERY OPERATION

45° Scoop Tooth — Aggressive Stock Removal

SIK Serration — Aggressive Contact Work



Cosmo Expander — Backstand Idler Not Needed

"X" Serration — Moderate Contour Work

Specializing in Contact Wheels and Industrial and Printers Rolls

CHICAGO RUBBER COMPANY, INC.

662 MARKET STREET • WAUKEGAN, ILLINOIS

For more data circle 368 on Postpaid Card

DU PONT PRODUCT NEWS

Save time, avoid errors in bath make-up and replenishment with Du Pont's new sodium-copper cyanide double salt

Sodium-copper cyanide double salt has been developed by Du Pont to give copper platers a fast-dissolving, tailor-made plating chemical. It's a white, crystalline salt that combines high-quality Du Pont Cyanobrik® Sodium Cyanide and Copper Cyanide into *one* convenient copper-plating chemical for both bath make-up and replenishment.

You'll find these advantages in this new, easy to use sodium-copper cyanide double salt:

Time Saved—This convenient plating chemical eliminates time spent in weighing out sodium cyanide and copper cyanide separately. It dissolves readily in water or plating solution without the evolution of heat . . . cutting out several steps required to dissolve copper cyanide properly.

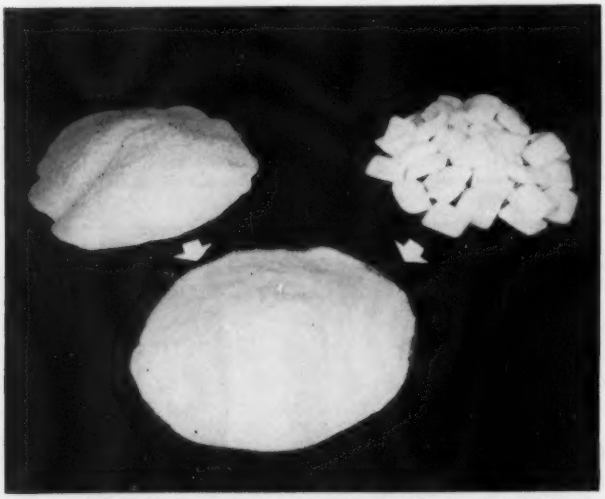
Errors Avoided—The active ingredients—sodium cyanide and copper cyanide—are present in the proportions required in the bath. This makes preparing or replenishing the plating bath a simple operation.

Chemical Handling Reduced—Sodium-copper cyanide double salt's balanced composition cuts down the handling of chemicals giving you an added safety measure.

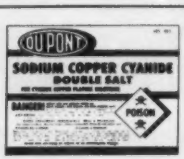
High Purity—Extremely pure basic constituents, careful manufacturing techniques, and low lead and sulfide contents give you a high-quality copper-plating product.

Double salt is prepared by crystallization from a filtered solution of Du Pont "Cyanobrik" sodium cyanide and copper cyanide. And new double salt contains no added materials such as sodium sulfocyanide.

Double salt is shipped in convenient, moisture-resistant 100-lb.-net fiber containers. For more information on this high-quality copper-plating salt, including information on price and delivery, call your Du Pont distributor or write today to your nearest Du Pont district or sales office.



• The same high quality that you have found in Du Pont Copper Cyanide (rear left) and "Cyanobrik" Sodium Cyanide (rear right) is combined into new, timesaving sodium-copper cyanide double salt (foreground).



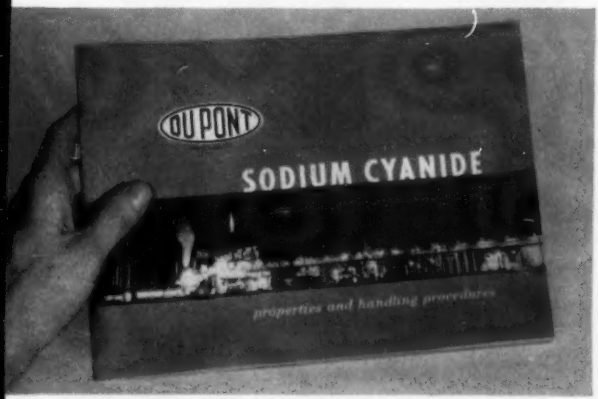
SPECIFICATIONS	
Copper	28.7% min.
"Free" sodium cyanide	0.4% to 2.0%
Lead	7 ppm. max.
Sulfides as sulfur	10 ppm. max.
Insolubles	0.01% max.

TYPICAL ANALYSIS	
Copper	28%
"Free" sodium cyanide	1%
Lead	Less than 1 ppm.
Sulfides as sulfur	Less than 5 ppm.
Insolubles	0.01%

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

FOR MODERN METAL PLATING



New Du Pont booklet gives you valuable information on uses, properties, and safe handling of sodium cyanide

ere's a valuable new reference book n Du Pont Sodium Cyanide. It de- ribes safe handling procedures . . . ses . . . specifications and typical anal- ses . . . packaging, shipping and stor- age . . . waste disposal . . . and methods for analyzing sodium cyanide.

Be sure to get your copy of Du Pont's new sodium cyanide booklet. Just write to the Du Pont District Office nearest you.

new high-speed cyanide copper-plating process

available from Du Pont for plating steel parts and zinc die castings. Thor- ughly field-tested, it's already being used for automobile bumpers and grilles, ardware products and wire. Advantages: low maintenance cost, only two addi- n agents needed, consistent and easily controlled performance. Contact your arest Du Pont District Office for full information.

ELECTROCHEMICALS DEPARTMENT
Sodium Products Division

E. I. DU PONT DE NEMOURS & CO. (INC.)
Wilmington 98, Delaware

New Du Pont laboratory nearing completion

designed to help solve your metal-plating problems . . .

This spring the Du Pont Electrochemicals Department's *New* Sales Technical Laboratory will begin providing extra support for the services now offered by your Du Pont distributor and your Du Pont technical representative.

This new lab will be used for the development of new and better plating products and processes. It will contain the latest plating equipment necessary to study and solve problems encountered with both large and small units. In many cases, Du Pont will be able to duplicate actual customer operations. In addition, this installation will house conference rooms and a technical library.

No need to hold off, if you have a plating problem. Get in touch with your DuPont representative or DuPont distributor; he'll be glad to help you.

DISTRICT AND SALES OFFICES

BALTIMORE 2,
321 Fallsway
BOSTON 10,
140 Federal St.
CHARLOTTE 1,
427 W. Fourth St.
CHICAGO 30,
7250 N. Cicero Ave., Lincolnwood
CINCINNATI 2,
2412 Carew Tower
CLEVELAND 20,
11900 Shaker Blvd.
DETROIT 35,
13000 W. Seven Mile Rd.
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P. O. Box 70, El Monte, Calif.
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SAN FRANCISCO 4,
111 Sutter St.
***Barada & Page, Inc.**
Export Div.
Du Pont Building, Wilmington 98, Del.

For more data circle 369 on Postpaid Card

How Applied: Parts to be coated with the cellulose are preheated and then dipped into a fluidized bed of specially prepared powdered cellulose resins. The parts emerge with a cellulosic coating eight to 15 mils thick bonded to the surface.

Applications: Finishing castings, steel wire fabrications and stampings; indoor and outdoor furniture, racks, stands and other hardware.

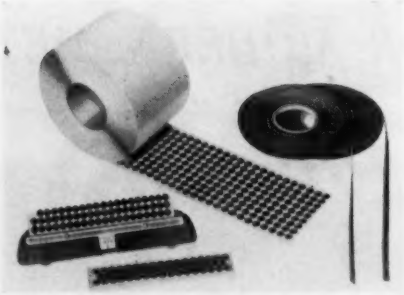
Manufacturer: Whirlclad Process is licensed in the United States. Further data available from National Polymer Products, Inc., 125 N. Fourth St., Reading, Pa.

For more data circle **121** on Reader Service Card

★ ★ ★

Self-Sticking Felt

Manufacturer: W. H. Brady Company, 746 Glendale Avenue, Milwaukee 9, Wisconsin.



Several Types of Brady Self-Sticking Felt

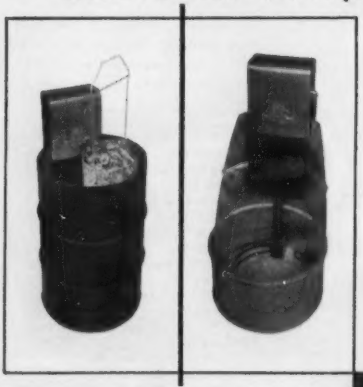
Material: Adhesive-backed felt, precut in a wide variety of shapes and sizes—strips, discs, and so on.

Applications: Sealing, spacing, cushioning, insulating and protecting parts in maintenance and production work. Can be attached to items that would scratch highly polished surfaces. Help-

BAR-L VAPOR DEGREASER

Cleans 700 lbs. of steel per hour!

ONLY $219.50



Left: Barrel mounted BAR-L in action. Right: Cutaway showing BAR-L with Vapor Condenser.

PORTABLE • INEXPENSIVE
SAFE • EFFICIENT • FAST

Vapor degreasing can be accomplished at every work location with a MANPRO BAR-L unit. This low priced equipment is rugged, easy to use, and extremely thorough. Operational costs are extra low with BAR-L. Equipped with Vapor Condenser just $30 more. Write or call for FREE literature on the BAR-L and other larger degreasers.

MANPRO CORPORATION
1362 HILTON RD. • DETROIT 20, MICH.

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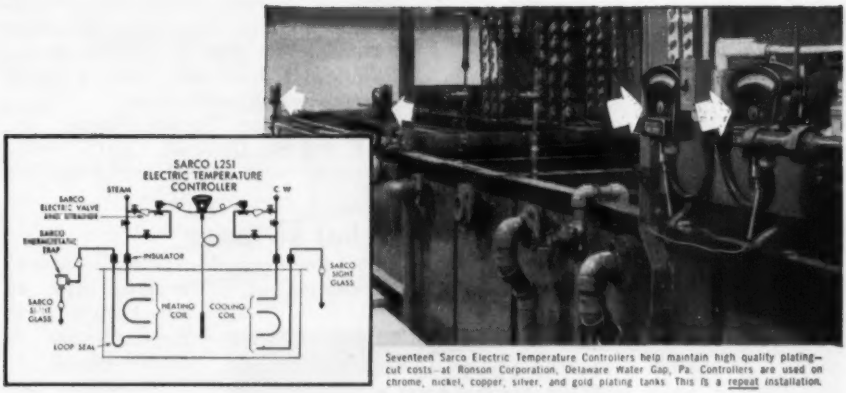


Seventeen Sarco Electric Temperature Controllers help maintain high quality plating—cut costs—at Ronson Corporation, Delaware Water Gap, Pa. Controllers are used on chrome, nickel, copper, silver, and gold plating tanks. This is a repeat installation.

Improve plating quality—cut your costs with low-cost temperature control

Unstable bath temperatures . . . the result of erratic manual temperature control . . . are sure to lead to costly rejects, wasted man-hours and breakdown of plating solutions.

You can solve these problems at *low cost* . . . by installing always-reliable Sarco Automatic Temperature Control. Just think . . . a complete Sarco System is yours for as little as $130 a tank!

1. **You improve plating quality** because creeping temperatures are a thing of the past.
2. **You lower rejects** because solutions are held automatically to pre-set temperatures. No chance for human error to mess up a tankload . . . and cut into profits.
3. **You get better utilization of time** —platers are able to concentrate on their plating work. No worrying about bath temperatures. No turning on and off of valves.
4. **You save plating solutions** — because automatic control prevents boil-off caused by overshooting temperature.

Write for Bulletin 1025-B or consult your plating supplies jobber. Sarco Company, Inc., 635 Madison Avenue New York 22, N. Y.

Sarco L5I Electric Temperature Controller

A COMPLETE SYSTEM FOR AS LITTLE AS $130 A TANK!

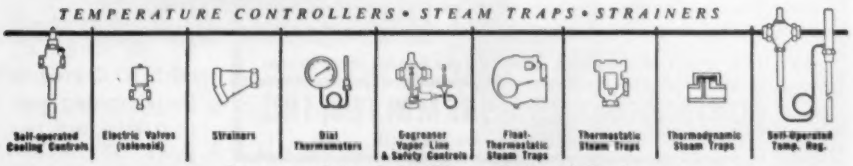
Think of it . . . automatic temperature control that often pays for itself in weeks!

Easy-to-read controller dial clearly indicates temperature being maintained. Temperature setting quickly changed by turning one knob.

2224-B

SARCO *improves product quality and output*

TEMPERATURE CONTROLLERS • STEAM TRAPS • STRAINERS



For more data circle 371 on Postpaid Card

ful in packaging sensitive instruments, where it is used as a shock absorber.
For more data circle **122** on Reader Service Card

★ ★ ★

Laboratory Hoods

Description: A line of laboratory hoods constructed of polyvinyl chloride plastics throughout resists a wide range of corrosives, including acids, alkalies and many organics. Includes a transparent plastic skylight and a white plastic backpiece, both of which are resistant to corrosives.

Manufacturer: Golden Plastics Co., 333 E. 8th St., Oakland, Calif.
For more data circle **123** on Reader Service Card

★ ★ ★

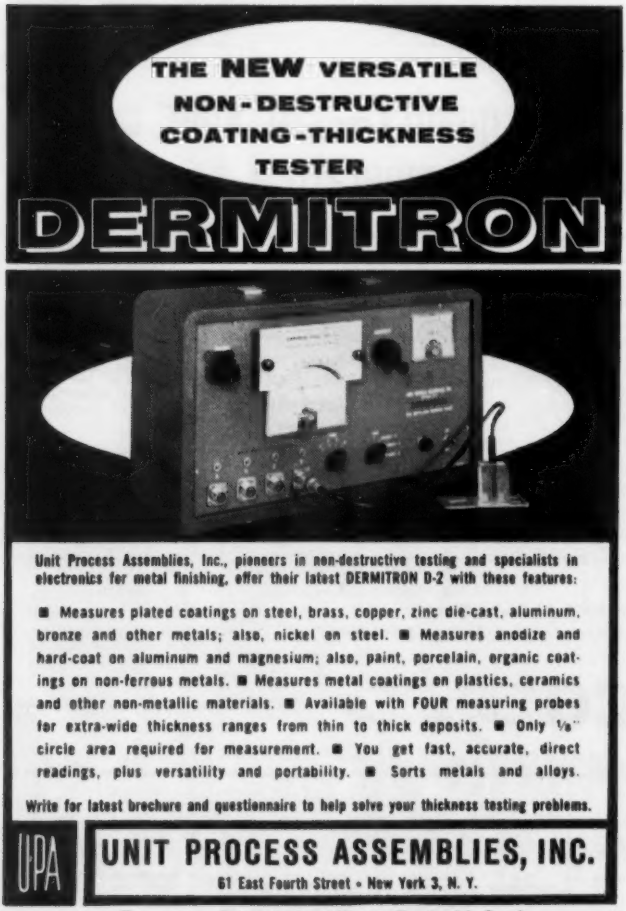
Nickel Stripper

Manufacturer: United Chemical Corporation of New England, 45 Seekonk St., Providence 6, Rhode Island.

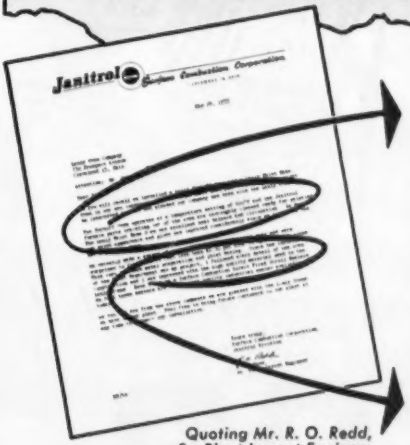
Material: Ni-Plex, a stripper for removing nickel from all common metals.

Properties: Contains no cyanides, caustic or acid; does not fume; is stable over long periods of time at elevated temperatures; will not pit the basis metal.

How to Use: The solution comes in two packages, which are diluted to proper concentration. Bath is operated at room temperature. pH, 7 to 11. Stripping rate is 0.00025 inch per hour at room temperature. Temperature can be raised to 80 deg. F., which increases the stripping rate to 0.0015 inch per hour.


THE NEW VERSATILE
NON-DESTRUCTIVE
COATING-THICKNESS
TESTER
DERMITRON
Unit Process Assemblies, Inc., pioneers in non-destructive testing and specialists in electronics for metal finishing, offer their latest DERMITRON D-2 with these features:
■ Measures plated coatings on steel, brass, copper, zinc die-cast, aluminum, bronze and other metals; also, nickel on steel. ■ Measures anodize and hard-coat on aluminum and magnesium; also, paint, porcelain, organic coatings on non-ferrous metals. ■ Measures metal coatings on plastics, ceramics and other non-metallic materials. ■ Available with FOUR measuring probes for extra-wide thickness ranges from thin to thick deposits. ■ Only 1/8" circle area required for measurement. ■ You get fast, accurate, direct readings, plus versatility and portability. ■ Sorts metals and alloys.
Write for latest brochure and questionnaire to help solve your thickness testing problems.
UPA
UNIT PROCESS ASSEMBLIES, INC.
61 East Fourth Street • New York 3, N. Y.
For more data circle 372 on Postpaid Card

Janitrol Divisions
Surface Combustion Corporation
COLUMBUS 16, OHIO


Janitrol Surface Combustion Corporation

Quoting Mr. R. O. Redd, Sr. Plant Layout Engineer

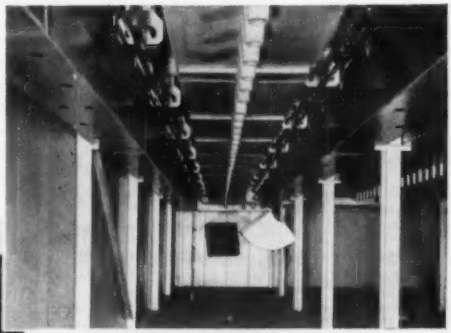
The LANLY Paint Bake Oven

HAS EXCELLENT HEAT BALANCE AND CIRCULATION. IN FACT OUR PAINT APPEARANCE AND GLOSS HAS IMPROVED CONSIDERABLY SINCE WE INSTALLED THE NEW LANLY BAKE OVEN

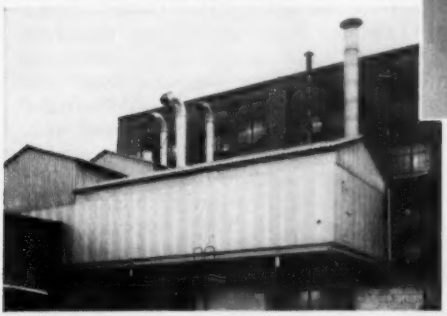
I was impressed with the high quality material used in the Lanly ovens.

Another of the nation's leading manufacturers attests to the efficiency and multi-fold merits of their LANLY OVENS.

Illustration below shows the ingenious manner in which LANLY engineers with the cooperation of The Surface Combustion organization, circumvented the problem of available factory floor space.



Showing a partial conveyor run in the LANLY low temperature paint bake oven.



YOU TOO CAN DO A BETTER JOB WITH LANLY OVENS

Write for the Lanly Catalog

LANLY FINISHING OVENS
THE LANLY COMPANY • 770 PROSPECT AVE
CLEVELAND, OHIO

For more data circle 373 on Postpaid Card

Typical Uses: Removing nickel plates from steel, copper and brass parts. Safe for use on all types of die castings and for parts containing two or more basis metals.

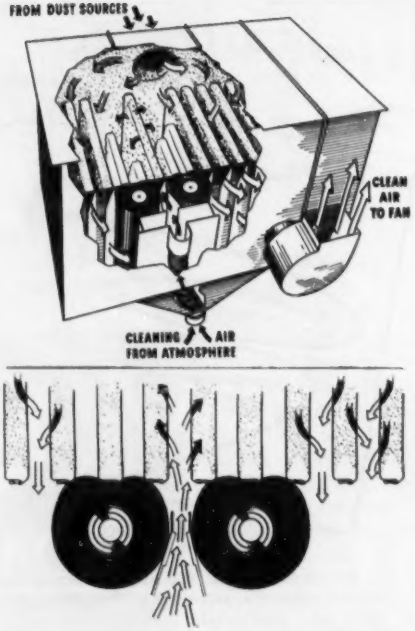
For more data circle **124** on Reader Service Card

★ ★ ★

Dust Filter

Description: Sly "Roll-Clean" Dynaclone Dust Filter retains basic advantages of original Dynaclone, has improved method of cleaning collected dust from filter bags.

Operation: "Roller cleaner" moves back and forth across open ends of filter bags, seals each bag as it is being cleaned by atmospheric air. Cleaning air is brought into the filter by the main fan while the dust filter continues to operate.



Cutaway view (top) shows dust entry into Dynaclone, passage of dust-laden air through filter bags, clean-air exit to the single fan, and hose through which reverse cleaning air is admitted to the "roller cleaner." Close-up (bottom) shows seal provided by rubber rolls.

Improvements: "Roll-Clean" Dynaclone has more cloth area, therefore, greater filtering capacity; filter-bag changing is easier because "false" wall in clean-air chamber is eliminated (any single bag can be removed without disturbing other bags); complete dust seal is provided by rubber rolls, which block off adjacent bags to prevent pickup of dust dislodged from bag being cleaned; easy access for inspection and servicing is provided by doors at both ends of dust filter and by access space in clean-air chamber.

Applications: Where process ventilated is continuous and dust volume and concentration are high.

Complete details are included in

FUNCTIONAL FINISHES!!

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity—

Try Us!

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

The Varnish Products Co.

5204 Harvard Avenue
Cleveland, Ohio

For more data circle 374 on Postpaid Card

Again, depend on PRODUCTS FINISHING to take your message to the 1958 ELECTROPLATERS' CONVENTION

Be sure your message is seen in the May issue of PRODUCTS FINISHING, where it will share space with the finishing industry's most eagerly read news.

Those who attend will use PRODUCTS FINISHING as a guide to the convention. Those who do not, can see the meeting through the eyes of the finishing industry's leading publication. Featured in the May issue will be: previews of meetings, schedule of proceedings, summaries of technical sessions, abstracts of all papers, personalities and events . . . complete coverage of the convention.

Paralleling PRODUCTS FINISHING's coverage of both plating and painting, this A.E.S. meeting will present material on both finishing fields. Every PRODUCTS FINISHING issue gives double coverage . . . more worthwhile circulation at the lowest cost!

The May issue gives you extra circulation distributed at the A.E.S. meetings . . . *plus* exceptionally high interest and readership for every copy. Put your advertising story before PRODUCTS FINISHING's readers . . . at the convention and at home . . . for maximum results!

Regular rates apply. Make your space reservation now. Closing date is April 15th.

PRODUCTS FINISHING

431 MAIN STREET • CINCINNATI 2, OHIO

GARDNER PUBLICATIONS, INC. . . . also publishers of MODERN MACHINE SHOP

catalog "Industrial Dust Control," available from the manufacturer.

Manufacturer: The W. W. Sly Manufacturing Co., 4784 Train Ave., Cleveland 1, Ohio.

For more data circle **125** on Reader Service Card

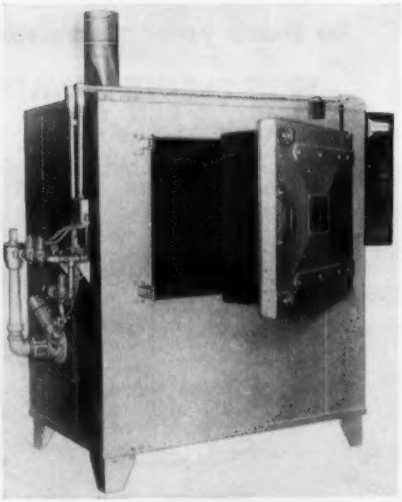
★ ★ ★

Recirculating Furnaces

Description: A line of recirculating furnaces has potentiometer-type temperature control (1000 deg. F.), is designed for use in heat treating.

Available for either electric or gas heat (oil on special order), and in various sizes, these furnaces have high-pressure, high-velocity air circulation, with air flow controlled by means of adjustable louvers covering the area of the supply and return duct work.

All models have stainless steel interior cabinets; high-temperature block insulation; and stainless steel blowers.



Model HX-1000 Gas-Fired Recirculating Furnace has work chamber 38 by 20 by 26 inches, 150,000-B.t.u. gas burner, ¾-h.p. motor to drive recirculating air blower. Other sizes are available, as are 1250 deg. F. units

Catalog sheets giving complete details are available.

Manufacturer: Grieve-Hendry Company, Inc., 1401 W. Carroll Ave., Chicago 7, Illinois.

For more data circle **126** on Reader Service Card

★ ★ ★

Fast-Acting Paint Stripper

Description: Kol-Strip, a paint stripping solution formulated to strip all types of organic finishes rapidly, is effective at comparatively low (260-275 deg. F.) temperatures. Removes finishes from the part being stripped, separates resins and pigments by chemical action. Pigments settle to form sludge, which is removed periodically to keep bath at top efficiency. Non-flammable.

Bath is said to have long life, re-

TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use over 6 years in light and heavy production.

- Ready To Use—Just Add Water
- No Variance in Color
- Trouble-Free—Little Supervision Needed
- Low Cost—Additions only once a day

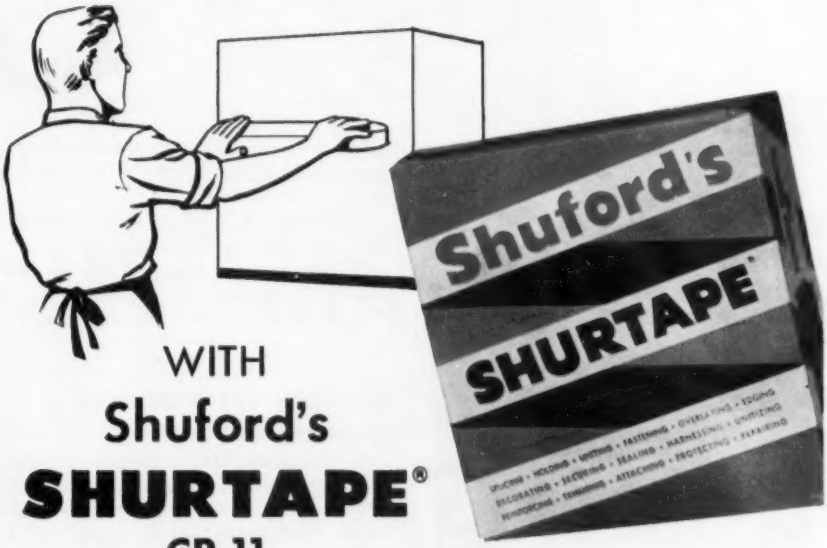
Available in a variety of colors. Will match your sample.

Write for technical bulletin and prices.

TRUE BRITE CHEMICAL PRODUCTS CO.
Box 31, Oakville, Conn.

For more data circle 376 on Postpaid Card

RAZOR SHARP
LINES ON THE FINISH



WITH
Shuford's
SHURTAPE®
CP-11

RELEASES EASILY FROM ROLL

For complete information, write

A thin-gauge, pressure-sensitive paper tape, rubber impregnated that prohibits paint build up by brush or spray gun. Conforms easily to curves, due to its flexibility.

Instant adhesion and clean strip make SHURTAPE CP-11 a "natural" for high quality finishing on wood or metal.

CLOTHES LINES • TWINES
PRESSURE-SENSITIVE PAPER TAPES
SASH CORDS • WEATHER STRIPPING
COTTON & RAYON YARNS • EXTRUDED PLASTICS

Shuford SINCE 1880 Mills, INC
HICKORY, N. C.

World's Largest Manufacturer of Cotton Cordage

2980

For more data circle 377 on Postpaid Card

quires no complicated control procedures to determine when additions are necessary.

Uses: Stripping rejects; removing epoxies, acrylics, other organic finishes that resist stripping. Will not cause distortion of sheet metal parts that are prone to warp when heated to high temperatures.

Manufacturer: Kolene Corporation, 12890 Westwood Ave., Detroit 23, Michigan.

For more data circle **127** on Reader Service Card

★ ★ ★

Self-Aligning Contact Wheel

Description: A molded rubber arbor hub used on the R-57 contact wheel gives effect of "floating power." Principle is similar to that used in mounting automobile engines in rubber - cushioned mounts to avoid vibration. The wheel aligns itself by centrifugal force, does not vibrate, and needs no aligning even when spindle is worn, the manufacturer states.

R-57 Contact Wheel: has floating power

Available in 6- to 16-inch diameters and one- to four-inch widths.

Manufacturer: Chicago Rubber Co., Inc., 662 Market St., Waukegan, Ill.

For more data circle **128** on Reader Srevice Card

★ ★ ★

Stripper for Vacuum Coating Rejects

Description: Octastrip 444 is formulated to remove vacuum metalized finishes quickly, on a production line basis. Part immersed in a tank of this cold-solvent stripper will be stripped in 15 seconds to one minute, the manufacturer states. Used at room temperature. Pressure water spray rinse leaves part clean and ready for refinishing. Non-flammable. Non-corrosive. Requires adequate ventilation.

Uses: For reclaiming rejected vacuum coated parts: costume jewelry, instruments, appliances, automotive parts, dials and name plates, cutlery, hardware, and so on.

Data Sheet No. PS-444, available from the manufacturer, gives complete information.

Manufacturer: Octagon Process, Inc., 29 Bank St., Staten Island 1, New York.

For more data circle **129** on Reader Service Card

Park
No. 290
BLACKENING SALT

Black Oxide finishing for rust resistance and decorative parts. Speedy black coating in water solution with no electric current. Permanent black finish on ordnance parts, tools, aircraft, bearing races. Dazzling black decorative finish for television cameras, business machines, hardware, metal screens and machine parts. Excellent bond for paints and enamels. Simple one bath operation. Write for bulletin H-16. Park Chemical Co., 8078 Military Ave., Detroit 4, Mich.

For more data circle 378 on Postpaid Card

1	17	33	49	65	81	97	113	129	145	301-2nd Cov.	330	346	362	378	394	410	426	442
2	18	34	50	66	82	98	114	130	146	302-3rd Cov.	331	347	363	379	395	411	427	443
3	19	35	51	67	83	99	115	131	147	303-4th Cov.	332	348	364	380	396	412	428	444
4	20	36	52	68	84	100	116	132	148	304	317	333	349	365	381	397	413	429	445
5	21	37	53	69	85	101	117	133	149	305	318	334	350	366	382	398	414	430	446
6	22	38	54	70	86	102	118	134	150	306	319	335	351	367	383	399	415	431	447
7	23	39	55	71	87	103	119	135	151	307	320	336	352	368	384	400	416	432	448
8	24	40	56	72	88	104	120	136	152	308	321	337	353	369	385	401	417	433	449
9	25	41	57	73	89	105	121	137	153	309	322	338	354	370	386	402	418	434	450
10	26	42	58	74	90	106	122	138	154	310	323	339	355	371	387	403	419	435	451
11	27	43	59	75	91	107	123	139	155	311	324	340	356	372	388	404	420	436	452
12	28	44	60	76	92	108	124	140	156	312	325	341	357	373	389	405	421	437	453
13	29	45	61	77	93	109	125	141	157	313	326	342	358	374	390	406	422	438	454
14	30	46	62	78	94	110	126	142	158	314	327	343	359	375	391	407	423	439	455
15	31	47	63	79	95	111	127	143	159	315	328	344	360	376	392	408	424	440	456
16	32	48	64	80	96	112	128	144	160	316	329	345	361	377	393	409	425	441	457

APRIL, 1958

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STREET _____

CITY _____ ZONE _____ STATE _____

PRODUCTS MANUFACTURED _____

Circle numbers (NOT PAGE NUMBERS) to request information

1	17	33	49	65	81	97	113	129	145	301-2nd Cov.	330	346	362	378	394	410	426	442
2	18	34	50	66	82	98	114	130	146	302-3rd Cov.	331	347	363	379	395	411	427	443
3	19	35	51	67	83	99	115	131	147	303-4th Cov.	332	348	364	380	396	412	428	444
4	20	36	52	68	84	100	116	132	148	304	317	333	349	365	381	397	413	429	445
5	21	37	53	69	85	101	117	133	149	305	318	334	350	366	382	398	414	430	446
6	22	38	54	70	86	102	118	134	150	306	319	335	351	367	383	399	415	431	447
7	23	39	55	71	87	103	119	135	151	307	320	336	352	368	384	400	416	432	448
8	24	40	56	72	88	104	120	136	152	308	321	337	353	369	385	401	417	433	449
9	25	41	57	73	89	105	121	137	153	309	322	338	354	370	386	402	418	434	450
10	26	42	58	74	90	106	122	138	154	310	323	339	355	371	387	403	419	435	451
11	27	43	59	75	91	107	123	139	155	311	324	340	356	372	388	404	420	436	452
12	28	44	60	76	92	108	124	140	156	312	325	341	357	373	389	405	421	437	453
13	29	45	61	77	93	109	125	141	157	313	326	342	358	374	390	406	422	438	454
14	30	46	62	78	94	110	126	142	158	314	327	343	359	375	391	407	423	439	455
15	31	47	63	79	95	111	127	143	159	315	328	344	360	376	392	408	424	440	456
16	32	48	64	80	96	112	128	144	160	316	329	345	361	377	393	409	425	441	457

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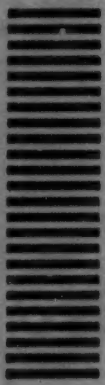

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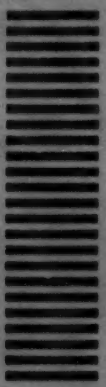

PRODUCT LITERATURE

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1. Satin Finish Compounds
Information on Lea satin finish compounds. Lea Manufacturing Co., 16 Cherry Ave., Waterbury 20, Conn.

2. Cable Conveyors
Descriptive literature on Bush-Lock cable conveyors, which are able to negotiate sharp turns, make short dips. The E. W. Buschman Co., 4516 Clifton Ave., Cincinnati 32, Ohio.

3. Finishing Continuous Coil Stock
Information on Clair Model 209 surface finishing machine, designed to be used in finishing continuous coil stock and long sheets. Clair Manufacturing Co., Inc., Olean, N. Y.

4. Quick-Dry Paint Dip
Data about the Harding Hot Dip Paint Process, in which the part to be painted is preheated, then dipped into paint that has been heated to 160 deg. F. Paint is reduced with chlorinated solvent, which evaporates immediately as the heated part emerges from the dip tank. David-Ludwig Co., 14290 Goddard, Detroit 12, Michigan.

5. Patented Buff
Information on a buff with a patented mounting that maintains a cutting angle of 45 degrees, for faster, smoother cutting with less pressure. Guaranteed Buff Co., Inc., 20 Vandam St., New York 13, New York.

6. Flock Application
Brochure and instructions on the application of flock with new materials and techniques. Cellusuede Products, Inc., 512 N. Madison St., Rockford, Ill.

7. More Oven Capacity
Detailed information about a combination of primers and topcoats that can be baked simultaneously, in one pass through the oven. Egyptian Lacquer Manufacturing Co., Box 444, Newark 1, New Jersey.

8. Solve Paint Stripping Problems
Information on the company's fast-action solutions to paint stripping problems. DuBois Co., Inc., Paint Stripping Clinic, 1120 W. Front St., Cincinnati 3, Ohio.

9. Cutting Barrels
Literature on line of enclosed tumbling barrels, which speed deburring, descaling, polishing and cutting operations on screw machine parts, stampings and castings. Hartford Steel Ball Co., Inc., 123 Jefferson Ave., West Hartford 6, Connecticut.

10. Protect Ducts, Racks, Tanks
Information on Miccrosol coatings, available in dip or spray formulations, to protect surfaces that are exposed to chemical atmospheres. Michigan Chrome & Chemical Co., 8615 Grinnell Ave., Detroit 13, Michigan.

11. Automatic Spray Gun
Bulletin I-2510 describes DeVilbiss Type AGA automatic spray gun, its uses and desirable construction features. The DeVilbiss Co., Dept. 331-A, Toledo 1, Ohio.

12. Epoxy Color Pastes and Compounds
Booklet describes Clinton epoxy resin compounds and color dispersions. The Clinton Co., 1220 Elston Ave., Chicago 22, Illinois.

13. Germanium Rectifiers
Information on a complete line of germanium rectifiers. General Electric Co., Rectifier Dept., Mountain View Rd., Lynchburg, Va.

14. Copper-Nickel-Chrome Thickness
Kocour Model 955 Electronic Thickness Tester can determine the thickness of each layer of a composite copper-nickel-chromium deposit over zinc, give separate readings for thickness of each of the three coatings. Complete details available. Kocour Co., 4814 S. St. Louis Ave., Chicago 32, Ill.

For information on any product advertised in this issue
← circle numbers on this postpaid card

15. Ovens
Information on Lanly finishing ovens. Lanly Co., 770 Prospect Ave., Cleveland, Ohio.

16. Multiple-Process-Cycle Plating Machine
Information on the Select-O-Matic automatic plating machine, which allows the operator to select one of several process cycles when he loads the machine, merely by turning a dial. Lasalco, Inc., 2820 LaSalle St., St. Louis 4, Mo.

17. Answer to Cleaning Problems
File folder gives answers to many cleaning problems, includes data on alkaline cleaning, barrel finishing, descaling, emulsion cleaning, pickling, phosphatizing, rust prevention, rust removal, other related subjects. Magnus Chemical Co., Inc., 208 South Ave., Garwood, N. J.

18. Black Finishes
Information on Ebonol products for blackening steel, copper, brass, zinc. Enthone, Inc., 442 Elm St., New Haven 11, Conn.

19. Sisal Buffs
Descriptive literature on Zippo sisal buffs. Formax Mfg. Corp., Detroit 7, Michigan.

20. Quartz Immersion Heaters
Bulletin describes acid- and alkali-resistant quartz immersion heaters. Glo-Quartz Electric Heater Co., Inc., Willoughby, Ohio.

21. Spin Finish
Information on the Spin Finish method of pre-plate finishing of brass, zinc die cast and aluminum die cast parts. Grav-I-Flo Corp., Dept. PF, 400 Norwood Ave., Sturgis, Mich.

22. Flat Finisher
Description of model FF-6 abrasive belt finishing machine. Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich.

23. Fluoborates
Data on fluoborate plating chemicals: cadmium, copper, lead, nickel, tin, zinc, fluoboric acid. Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

24. Zinc Brightener
Information on Rohco 503 zinc brightener. R. O. Hull & Co., Inc., 1304 Parsons Ct., Rocky River 16, Ohio.

25. Conveyorized Paint Finishing
Information on conveyorized paint finishing systems. George Koch Sons, Inc., Evansville 4, Indiana.

26. Depth Filtration
Folder contains data on Sethco Filter Pump units built for filtering electroplating solutions. Sethco Mfg. Co., 2292 Babylon Turnpike, Merrick, L. I., N. Y.

27. High-Temperature Masking
Complete information on Shurtape CP-15, a rubber-impregnated crepe-paper-backed pressure-sensitive tape that withstands high temperatures of bake ovens. Shuford Mills, Inc., Hickory, N. C.

28. Hot Spray System
Literature on the company's line of hot spray equipment. Spee-Flo Co., Dept. PF, 6614 Harrisburg, Houston 11, Texas.

29. Spraying Wash Primer
Information on Stantite Spraying Wash Primer, a two-package rust-inhibiting primer that is said to improve the quality of any topcoat, air-dry or bake. Stanley Chemical Co., Dept. D, 1338 Berlin St., East Berlin, Conn.

30. Automatic Metal Finishing
Information on "Little Steve," a compact automatic processing machine that can be adapted to anodizing, dip-painting, flow coating, bright dipping, ultrasonic cleaning, electropolishing, tin immersion processing, other finishing processes. Frederic B. Stevens, Inc., Detroit 16, Michigan.

31. Rack Trucks
Information on rack trucks made to handle parts during batch-type baking operations. Wilder Mfg. Co., Inc., Dept. H, Mechanic St. & Erie R.R., Port Jervis, New York.

32. Brass Plating Solution
Technical bulletin on True Brite Brass. True Brite Chemical Products Co., Box 31, Oakville, Conn.

33. Black Oxide
Bulletin H-16 tells how to produce a rust-resistant decorative black finish that is also an excellent bond for paints and enamels. Park Chemical Co., 8078 Military Ave., Detroit 4, Mich.

34. Electrostatic Spray Painting
No. 2 Process Brochure cites numerous examples of electrostatic spray painting on a wide variety of products. Ransburg Electro-Coating Corp., Indianapolis 7, Indiana.

35. Acrylic Enamel
Information on Duracron thermosetting acrylic enamels, now available in formulations that cure at lower temperatures. Pittsburgh Plate Glass Co., Industrial Finishes Div., 1 Gateway Center, Pittsburgh, Pa.

Circle numbers on postpaid card opposite page 129 to obtain free literature

36. Small Automatic Plater
Technical data on the new Jet Plater, a complete, small-volume plating unit for precious-metal plating. Sel-Rex Corp., Dept. PF, Nutley 10, N. J.

37. Heavy-Duty Electrocleaner
Information on Pennsalt K-8, a heavy-duty electrocleaner that blasts off smut, neutralizes acid soils, works well in hard water. Pennsalt Chemicals Corp., Metal Processing Dept. 587, 3 Penn Center, Philadelphia 2, Pa.

38. Polishing, Deburring, Leveling
Data on Electro-Glo electropolishing solutions for copper, stainless steel, carbon steel, less common metals and alloys. Electro-Glo Co., 1429 S. Talman Ave., Chicago 8, Ill.

39. Overhead Chain Conveyor
Basic data on the Chainveyor is given in a folder that answers questions "What is a Chainveyor?" "Why is Chainveyor Better?" "What are 'Power-and-Free' Systems?" Chainveyor Corp., 5618 E. Washington Blvd., Los Angeles 22, Calif.

40. Automatic Plating Machines
Description of Wagner automatic plating machines and materials handling engineering services. Wagner Brothers, Inc., 432 Midland Ave., Detroit 3, Mich.

41. Silver Lacquer
Information on 2105 Silver Lacquer, a clear lacquer especially formulated to protect polished silver. G. J. Nikolas & Co., Inc., 2880 Washington Blvd., Bellwood, Ill.

42. Better Gloss Retention
Technical data about Isophthalic-based enamels, which are said to have excellent gloss retention, even after long periods of weathering. Oronite Chemical Co., 200 Bush St., San Francisco, Calif.

43. Automatic Polishing Machines
Information on automatic polishing and buffing machines. Packer Machine Co., Meriden, Conn.

44. Room-Temperature Blackening
Literature on Dicropan, a non-caustic blackener that works in as little as 13 seconds, at room temperature. Bob Brownell's, Corner Main & Third, Montezuma, Iowa.

45. Cold Phosphatizing
Information on recently introduced cold Bonderite system which is said to produce excellent phosphate coatings at low temperatures. Parker Rust Proof Company, 2172 E. Milwaukee, Detroit 11, Michigan.

46. Easy-Cleaning Spray Booth Walls
Information on Liquid Envelope No. 49-36 Lo-Vis strippable spray booth coating, a low-viscosity formulation that can be sprayed on the walls of spray booths easily, stripped off to remove accumulated overspray. Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

47. Drying Ovens
Information on gas-fired recirculating ovens in many types and sizes. The Carl Mayer Corp., 20800 Center Ridge Rd., Cleveland 16, Ohio.

48. Buffers and Polishers
Catalog describes 63 standard types and sizes of buffing and polishing lathes. Cincinnati Electrical Tool Co., 326 Mt. Hope Ave., Cincinnati 4, Ohio.

49. Printed Circuits
Information on rhodium plating solutions that can be used for contact surfaces of switches, waveguide parts, and printed circuits. Sigmund Cohn Mfg. Co., Inc., 121 S. Columbus Ave., Mount Vernon, New York.

50. Processing Aluminum
Technical data sheet on AK aluminum etchant, which is effective on all aluminum alloys, prevents scale by means of a special sequestering agent. Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.

51. Paint Finishing Systems
Bulletin 51 C describes complete finishing systems. Despatch Oven Co., 619 S. E. Eighth St., Minneapolis 14, Minn.

52. Hammered Gold
Information on a recently introduced gold hammer finish. Duralac Chemical Corp., 84 Lister Ave., Newark 5, N. J.

53. Clear Protective Coating
Data sheet tells about Irilac No. 1000, a concentrated solution of a water-soluble polymer with built-in corrosion-inhibiting materials. Can be used on all metals. Applied by dip, brush or spray. Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md.

54. Barrel Finishing Handbook
A 52-page booklet of facts, photographs, data and cost-comparison charts. Almco, Queen Products, Inc., 84 Marshall St., Albert Lea, Minn.

55. Metal Cleaning
A 28-page brochure describes company's line of cleaning and finishing machines. Alvey-Ferguson Co., 626 Disney St., Cincinnati 9, Ohio.

56. Heavy-Duty Electrocleaning
Data on Apex RPS cleaning compound, which is formulated to be used as a heavy-duty soak and in electrolytic cleaning of ferrous metals. Apex Alkali Products Co., Main & Rector Sts., Philadelphia 27, Pa.

57. Fast-Application Buffing Compound
Information on a greaseless buffing compound that is packaged in a plastic container, which wears away as necessary, eliminating the necessity for stripping away the cover. Atlantic Compound Co., 1862 Baldwin St., Waterbury, Conn.

58. Barrel Finishing Machines
Information on Baird Poliaction barrel finishing machines. The Baird Machine Co., Dept. PF, Stratford, Conn.

59. Reduce Plating Waste
Catalog 127-A illustrates complete line of water demineralizers, presents factual information that can help to reduce waste and save money. Barnstead Still & Demineralizer Co., 12 Lanesville Terrace, Boston 31, Mass.

60. Self-Sticking Felt
Data Sheet No. 187 describes Quik-Felt, an adhesive-backed felt that prevents scratches on highly polished surfaces. W. H. Brady Co., 746 W. Glendale Ave., Milwaukee 9, Wisconsin.

61. Clean Surface for Paint
A Descriptive Bulk Price List features four different types of tack cloth, tells about a recently introduced 20/16 mesh tack cloth. Bond Chemical Products Co., 2639 N. Clybourn Ave., Chicago 14, Ill.

62. Viscosity-Control Systems
Paper No. 54-26-1, a technical discussion entitled "Viscosity Control Systems for Plant Processes." Bendix Aviation Corp., Cincinnati Div., Dept. 390, 3130 Wasson Rd., Cincinnati 8, Ohio.

63. Improved Copper Plating
Publication CA-10R gives facts on OFHC Copper Anodes, tells why they produce smoother deposits, other advantages. American Metal Climax, Inc., 61 Broadway, New York 6, N. Y.

64. Conversion Coatings for Aluminum
Bulletin 1424-A deals with line of protective and prepaint conversion coating chemicals for aluminum. Discusses advantages of the coatings, methods of application, equipment used. Includes convenient selection chart. American Chemical Paint Co., Ambler 14, Pa.

65. Cleaning Products
Catalog 1402, a graphic presentation of Wyandotte chemicals for the metalworking and metal finishing industries. Describes operation to be performed, tells which Wyandotte material to use, how to use it. Broad classifications include aircraft manufacture, barrel finishing, electrocleaning, maintenance cleaning, washing-machine cleaning, soak cleaning, steam gun cleaning, tumble cleaning, water-wash paint spray booth maintenance. Wyandotte Chemicals Corp., Wyandotte, Mich.

66. Acid and Caustic-Resistant Apparel
1958 Catalog describes acid-resistant industrial apparel, including shirts, pants, coveralls and laboratory coats. Tables show resistance of various fabrics to a wide variety of chemicals. Worklon, Inc., 253 W. 28th St., New York 1, N. Y.

67. Chromium Plating Additive
Data on Udylite Zero-Mist H.T.-2, an additive for chromium plating baths. This material stops mist and spray, lowers surface tension to reduce dragout. Udylite Corp., Detroit 11, Mich.

68. Paint Spray Equipment
Catalog 35-22 describes a complete line of spray painting equipment, including paint pumps, air regulators, paint agitators, spray guns, air cap and fluid tip combinations, transfer pumps, portable paint pumps, other related equipment. Alemite Div., Stewart-Warner Corp., 1850 Diversey Parkway, Chicago 14, Ill.

69. Industrial Spray Nozzles
Catalog No. 24, a 48-page description of spray nozzles and accessories listed in tabular form. Complete information is given on pipe sizes, external dimensions, orifice diameters, capacities and spray angles. Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

70. Steam Traps
Bulletin No. 257-B describes Type TD-50 thermodynamic steam traps, tells how they work, advantageous features, capacities. Sarco Co., Inc., 635 Madison Ave., New York 22, N. Y.

71. Precision Barrel Finishing
A 24-page catalog on precision metal finishing by mechanical barrel finishing methods tells how to achieve large quantity production while maintaining exact tolerances and uniformity of finish. Explains how to perform grinding, deburring, descaling, polishing and coloring operations by barrel finishing methods. Roto-Finish Co., 3704 Milham Rd., Kalamazoo, Mich.

72. Ovens
Catalog No. 122 contains a guide for selecting the proper oven for baking, drying, and curing paint, varnish, lacquer and enamels. W. S. Rockwell Co., 2028 Eliot St., Fairfield, Conn.

73. Washing Machines
Booklet entitled "The Ransohoff Story" describes company's facilities, illustrates many different types of cleaning machines built by the company, including drum-type washers, conveyor-type wash, rinse and dry machines, cabinet-type "walking spray" machines, deburring machines, others. Ransohoff, Inc., North Fifth and Ford Blvd., Hamilton, Ohio.

74. Vapor Degreasers
Bulletin No. 953-3 describes vapor-spray, liquid-vapor, conveyorized, and other models of degreasers, describes basic fundamentals of vapor degreasing, advantages of the process. Ramco Equipment Corp., 811 Edgewater Rd., New York 59, N. Y.

75. Automotive Finishes
A 24-page catalog of automotive finishes for passenger cars, trucks, trailers, buses and other motor vehicles includes sections on surface preparation, undercoats, thinners, reducers, polishers and compounds as well as miscellaneous automotive refinishing materials and equipment. Pittsburgh Plate Glass Co., Ditzler Color Div., 8000 W. Chicago Ave., Detroit 4, Michigan.

76. Protect Steel
Folder describes Oakite CrysCoat HC, a zinc phosphate designed for tank application, to produce a heavy (900 to 1200 milligrams) phosphate coating that protects against corrosion and forms an excellent base for paint. Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

77. Airless Spray Painting
A six-page catalog tells about the Airless Spray Painting Process, answers general questions about this method, describes applications and advantages. Nordson Corporation, Amherst, Ohio.

78. Film Thickness Tester
Bulletin DF describes Dermitron Non-Destructive Thickness Tester, which will measure thickness of metals on metals, metals on non-conductors, non-conductors on metals. Explains how this instrument can be used as a "Go, No-Go Gage," principles of operation, effect of curvature, advantageous features. Unit Process Assemblies, Inc., 61 E. 4th St., New York 3, N. Y.

79. Vacuum Coaters
An eight-page bulletin contains data on principles of vacuum coating, production steps, applications, economics, and equipment required. NRC Equipment Corp., 160 Charlemont St., Newton Highlands 61, Massachusetts.

80. Cutting Costs
A 10-page booklet illustrates how several leading appliance manufacturers are cutting costs and improving finishes with 3M coated abrasives in various forms. Minnesota Mining & Manufacturing Co., Dept. FH-48, 900 Bush Ave., St. Paul 6, Minnesota.

81. Copper-Tin Bronze Plating
M & T copper-tin bronze is a corrosion resistant deposit of 88 per cent copper and 12 per cent tin, which can be used as an undercoat for other plated metals or as a final decorative finish. Folder BRZ-1R-10-856 gives details. Metal & Thermit Corp., Rahway, N. J.

82. Paint Finishing Systems
Catalog No. A-658 describes complete finishing systems; metal cleaning and pickling equipment; ovens; spray booths; air-supply systems; dust collectors; other equipment. R. C. Mahon Co., Detroit 34, Michigan.

83. Barrel Processing Manual
Manual entitled "Permag Compounds for Barrel Processing" includes general information, process information on 11 topics, and case-history data. Magnuson Products Corp., 50 Court St., Brooklyn 1, New York.

84. Cob Grits for Blasting, Tumbling
Information on corn cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc., P. O. Box 185, Tipton, Indiana.

85. Tumbling Machines
Folder describes wet and dry tumbling machines, lists advantages. H. W. Kramer Co., Inc., 120-30 Jamaica Ave., Richmond Hill 18, N. Y.

86. Electrostatic Spray Equipment
Centrifugal-atomization electrostatic spray equipment and electrostatic guns are described in a folder that also contains information on power packs, air and paint controls, guns and stands. Ionic Electrostatic Corporation, 111 Monroe St., Garfield, N. J.

87. Reflectometer
A description of the Gardner Automatic Multipurpose Reflectometer details features of this reflectance and gloss-measuring instrument. Gardner Laboratory, Inc., Dept. PF, Bethesda 14, Md.

88. Sodium Cyanide
Reference book on Du Pont sodium cyanide describes safe handling procedures, uses, specifications and typical analyses, packaging, shipping, storage, waste disposal procedures, and methods for analyzing sodium cyanide. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Sodium Products Div., Wilmington 98, Delaware.

89. Barrel Degreaser
Literature on Bar-L, an apparatus that fits 50-gallon drum to make an inexpensive degreaser. Manpro Corp., 1362 Hilton Rd., Detroit 20, Mich.

90. Heat Exchangers
Bulletin 258 gives design information on the Dean Thermo-Panel Coil, a heat exchanger formed by welding together two embossed plates to form flow channels. Dean Thermo-Panel Coil Div., Dean Products, Inc., 622 Franklin Ave., Brooklyn 38, N. Y.

91. Batch-Type Cleaning Machines
Five models of batch-type cleaning machines are described in a folder that shows photographs of each machine. Cincinnati Cleaning & Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio.

92. Sectional Contact Wheel
Data folder on the R-58 sectional contact wheel, which is said to conform better, increase belt life, allow greater flexibility, leave no patterns on work. Chicago Rubber Co., Inc., 662 Market St., Waukegan, Illinois.

93. Temperature Control
Information on Model T-34 immersion-type thermostat, which has a power element machined from virgin Teflon, so as to resist almost any chemical. Elkhart Controls Co., Route No. 2, Elkhart, Ind.

94. Drum Upender
Description of Drum Upender No. 32, a simple device that aids in upending heavy drums. Morse Mfg. Co., Inc., 762 W. Manlius St., E. Syracuse, N. Y.

95. Etch Primer
Data on Gripalloy, a satin sheen etching primer said to have excellent adhesion on 25 different metals, good resistance to salt spray, gasoline and solvents. Tenax, Newark, N. J.

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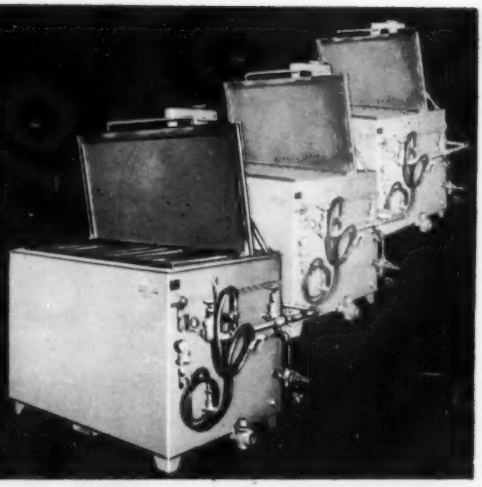
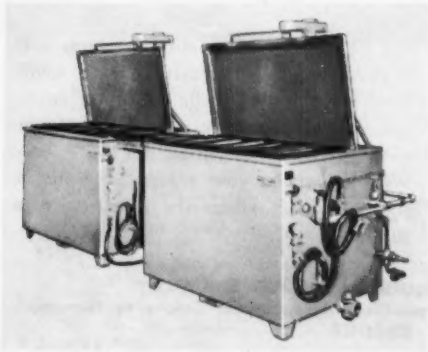


Whether your cleaning-in-process or finish cleaning requires one or more operations of prewash, wash, rinse, phosphatize, dry or other stages, Magnus Aja-Lif units can be combined to perform any sequence of operations. For instance, a portion of your production might require five stages of wash, rinse, phosphatize, rinse and dry. Other work may need only precleaning and rinsing before going on to other operations. The same equipment can be used for both by simply skipping the not needed stages for the in-process work. Versatility also exists in that individual Aja-Lif units can be easily removed, changed around or moved to a new location.



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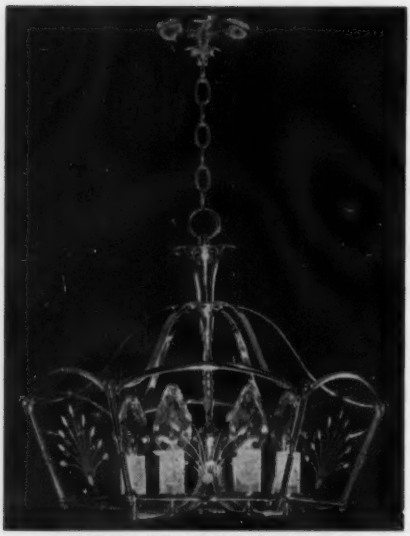

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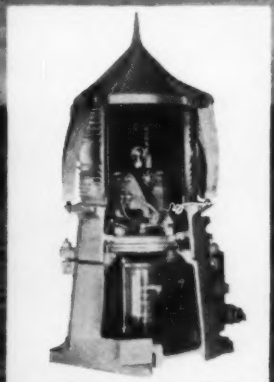

Cutaway view of W&T lantern showing automatic lampchanger and flasher mechanism.

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Always alert to modern production methods, Wallace & Tiernan, Inc., Belleville, New Jersey, have realized almost incredible savings in production-time with their SEL-REX JET PLATER—the complete plating "plant" in a single compact package.

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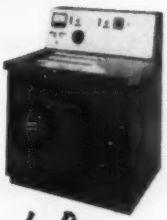

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Complete electroplating "plant" in 34" x 28" x 33" cabinet.

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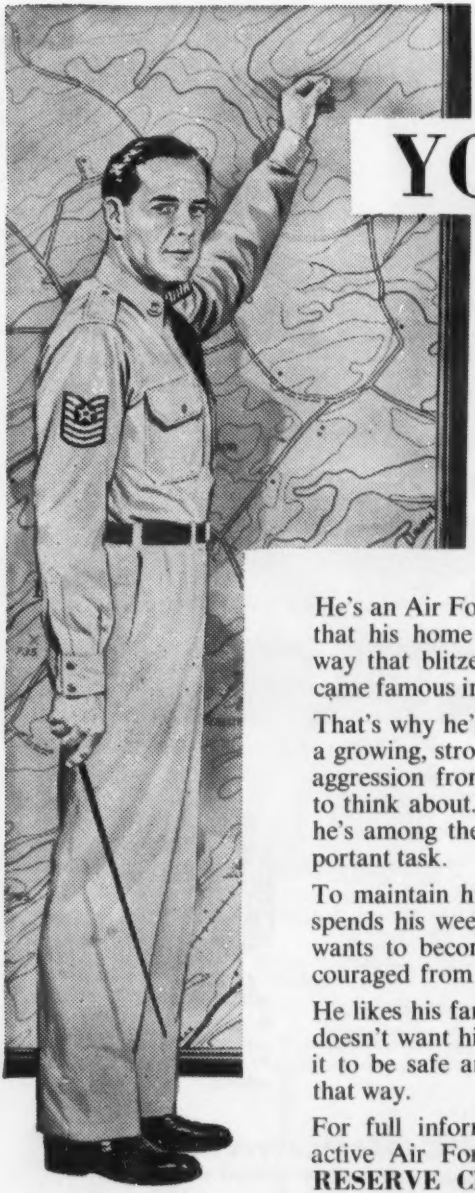

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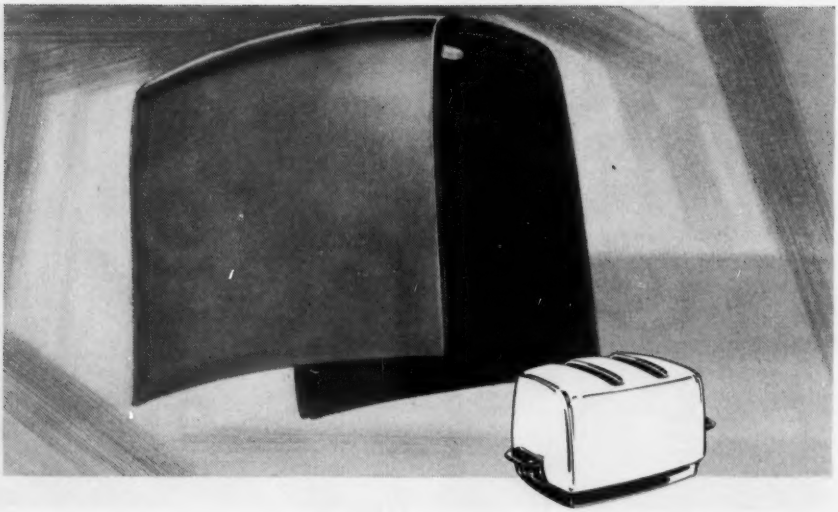

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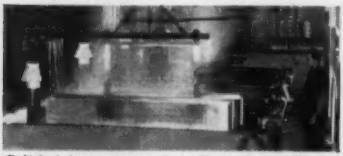
Use Bonderite and Bonderlube

Multiple head flat polishing at Production Finishing Corporation, Detroit.



Polished sheets are treated with Bonderite and Bonderlube before forming.

Bonderite and Bonderlube protect that smooth, flat-polished finish through forming and fabricating. Parts go direct to the plating bath from forming operations with only a light buffing.

All types of products are being made this way—automobile bumpers, automotive trim, toaster and small appliance bodies, home laundry equipment components and many other formed parts.

Cost reductions are big with Bonderite and Bonderlube: Polishing costs on bumpers went from 9c a square foot for contour polishing to 0.8c a square foot for flat polishing before forming. Savings of 10c to 30c a square foot have been reported by other industries.

The Parker technical representative has full information on this cost-cutting combination. A letter or phone call will bring it to you.

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BONDERITE	BONDERITE and BONDERLUBE	PARCO COMPOUND	PARCO LUBRITE	TROPICAL
corrosion resistant paint base	aids in cold forming of metals	rust resistant	wear resistant for friction surfaces	heavy duty maintenance paints since 1883

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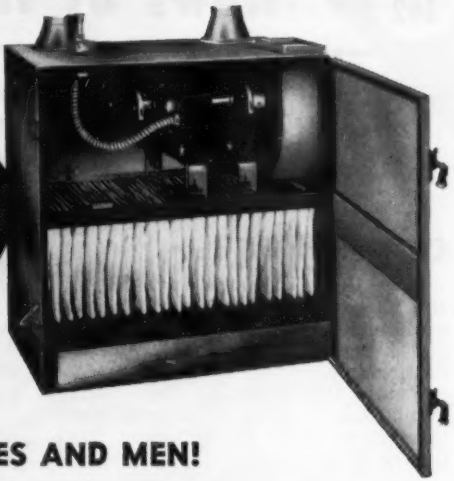
WITH THE EQUIPMENT THAT *FIGHTS* IMPURE AIR IN INDUSTRY.



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Page 142

News of the Industry

New plants . . . company news . . .
new positions . . . meetings . . . necrology . . .

COMPANIES

Acoustica Associates, Inc., Mineola, N. Y., manufacturer of ultrasonic equipment, recently opened a plant and research center in Culver City, California.

Frank De Luca has been named manager of the new California plant, located at 11601 N. Jefferson Blvd., Culver City, Calif.

The formation of a new company called **Dumatic Devices, Inc.,** has been announced by the founders, **Uyval C. Jones, Burnell N. Drum,** and **Lionel K. Drum.** With headquarters at 22833 Dequindre, Hazel Park, Mich., the new company will specialize in the production of stop-off masks for painting, plating, shot and sand blasting, and paint machines and mask washers.

Workers at Winstrom Manufacturing Co., College Point, N. Y., are protected from sulfuric acid used in anodizing storm windows and jalousies by Worklon Orlon uniforms. Company has saved money on clothing by furnishing chemical-resistant clothing.

The world's first commercial unit to continuously cast tough pitch copper cakes—the huge slabs from which copper sheet and strip are rolled — has been installed by **American Smelting and Refining Company** at its Perth Amboy, New Jersey, refinery.

Asarco's new process, regarded as a major breakthrough in non-ferrous metallurgy, permits casting of copper cakes up to 25 feet long by 36 inches wide and weighing over 17,000 pounds. Capacity of the new multi-million dollar cake casting installation is in excess of 160 tons of copper per 8-hour shift.

The Asarco casting technique eliminates batch casting in individual metal molds by use of a small, "bottomless" water-cooled graphite mold. Molten copper is poured continuously into the mold cavity, is cooled so rapidly that it solidifies as it passes through the mold, and emerges from the orifice as a smooth, dense copper cake.

The mold is the key element of the Asarco process. It is only 15 inches deep, but it has been designed by Asarco engineers so that it has a heat dissipation rate of about 1500 horsepower. This is believed to be the highest heat capacity per square inch of surface of any mold ever built for either ferrous or non-ferrous casting. The design enables the mold to solidify molten copper cast at 2100 deg. F., as it traverses the mold's 15-inch depth at a speed of up to 20 inches per minute for a 5-inch by 36-inch cake.

★ ★ ★

Lasalco of Texas, Inc., has announced the appointment of **J. C. Bessonette** as representative for the Texas

On tumble finishing equipment!

Grav-i-Flo again scoops the field with new lower prices for its standard line of finishing equipment and supplies. Now—gain Grav-i-Flo's experienced know-how plus lower prices—and *really* save! *Send for complete price lists* on 2 compartment machines in sizes 48″, 36″, 32″ and 24″!

GRAV-I-FLO CORPORATION
Dept. PF-4 • 400 Norwood Avenue, Sturgis, Michigan
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area. The company's new office and warehouse are at 2805 Allen St., Dallas, Texas.

Mr. Bessonette has been with Lasalco, Inc., Saint Louis, for 14 years.

★ ★ ★

Barrett Chemical Products Company has appointed the Los Angeles branch of **Chas. F. L'Hommedieu & Son Co.** as distributor for Barrett products in California, Arizona and New Mexico. Included in the new agreement are Barrett sulfamate nickel plating products and allied chemicals.

★ ★ ★

The Spee-Flo Company of Houston, Texas, manufacturer of hot spray paint equipment and paint pumps, has announced the appointment of **Paul E. Moss and Company, Inc.**, New York, as export representatives.

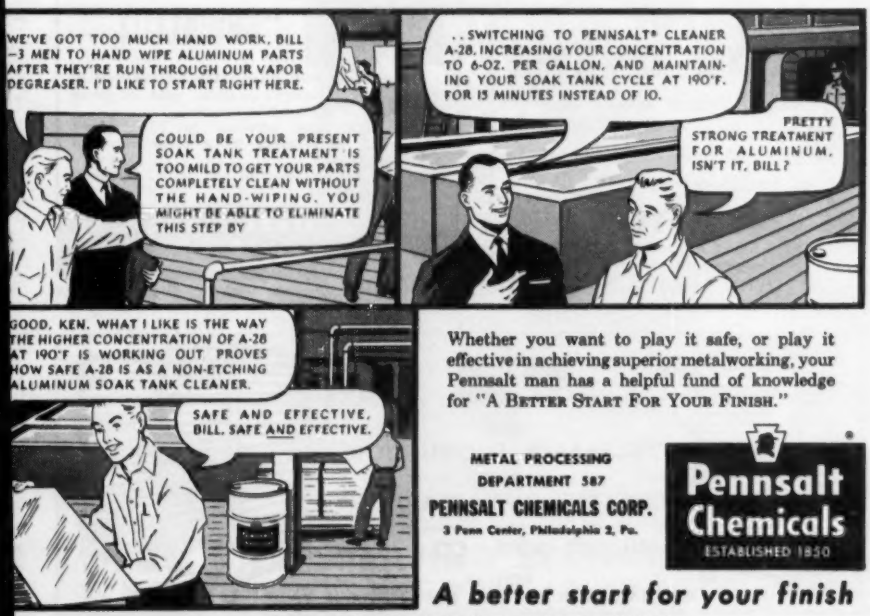
Carl C. Clabaugh

Paul E. Moss

Cowles Chemical Company, Cleveland, Ohio, has appointed **Wagner Brothers, Inc.**, Detroit, Michigan, distributor for the complete line of Cowles metal finishing chemicals. Announcement of the appointment was made by **C. C. Clabaugh**, manager of Cowles metal finishing chemicals department.

SAD SOAK TANK TALE
...WITH A HAPPY ENDING
BILL*, I'VE CALLED YOU IN BECAUSE I'VE GOT TO CUT CLEANING COSTS ON THE ALUMINUM SHEETS, CASTINGS AND EXTRUSIONS WE PREPARE FOR ANODIZING.
OK BY ME, KEN. PUTTING THE AXE TO A CUSTOMER'S COSTS IS A PENNSALT SPECIALTY. WHAT'S YOUR PROBLEM?
*BILL WILSON PENNSALT REPRESENTATIVE
NOT WHEN YOU USE PENNSALT A-28. IT'S AN ANHYDROUS POWDERED ALKALINE CLEANER THAT'S SPECIALLY INHIBITED TO PREVENT ATTACK ON ALUMINUM. AND A-28 DOES A GREAT JOB OF REMOVING RED AND BLACK MARKING INKS, FINGER MARKS AND SHOP SOILS.
LATER THE SAME WEEK
I WOULDN'T BELIEVE IT IF I HADN'T SEEN IT WITH MY OWN EYES. WE'VE COMPLETELY ELIMINATED HAND WIPING. EVERYBODY HERE IS PLEASED AS PUNCH WITH THE RESULTS.

A sales meeting of The Stanley Chemical Company, East Berlin, Conn., manufacturer of industrial coatings and plastics, was held recently at the company's home office to discuss the expanding market and future growth in the chemical industry. Valentine B. Chamberlain, Jr., sales munager, (far right), conducted the sessions. Sales representatives (left to right, standing) are Malcolm G. Nichols, Lucian H. Stevens, James B. Orr, Chester F. Rental and John G. Vogel. Seated, (left to right), Emery B. Slaght, Stanley M. Hunt, Robert T. Kubinak, Walter W. Tesch, F. H. Langhorst and J. A. McConochie.


WE'VE GOT TOO MUCH HAND WORK, BILL —3 MEN TO HAND WIPE ALUMINUM PARTS AFTER THEY'RE RUN THROUGH OUR VAPOR DEGREASER. I'D LIKE TO START RIGHT HERE.
COULD BE YOUR PRESENT SOAK TANK TREATMENT IS TOO MILD TO GET YOUR PARTS COMPLETELY CLEAN WITHOUT THE HAND-WIPING. YOU MIGHT BE ABLE TO ELIMINATE THIS STEP BY
..SWITCHING TO PENNSALT® CLEANER A-28, INCREASING YOUR CONCENTRATION TO 6-OZ. PER GALLON, AND MAINTAINING YOUR SOAK TANK CYCLE AT 190°F. FOR 15 MINUTES INSTEAD OF 10.
PRETTY STRONG TREATMENT FOR ALUMINUM, ISN'T IT, BILL?
GOOD, KEN. WHAT I LIKE IS THE WAY THE HIGHER CONCENTRATION OF A-28 AT 190°F IS WORKING OUT PROVES HOW SAFE A-28 IS AS A NON-ETCHING ALUMINUM SOAK TANK CLEANER.
SAFE AND EFFECTIVE, BILL. SAFE AND EFFECTIVE.

Whether you want to play it safe, or play it effective in achieving superior metalworking, your Pennsalt man has a helpful fund of knowledge for "A BETTER START FOR YOUR FINISH."

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DEPARTMENT 587
PENNSALT CHEMICALS CORP.
3 Penn Center, Philadelphia 2, Pa.

Pennsalt Chemicals
ESTABLISHED 1850

A better start for your finish

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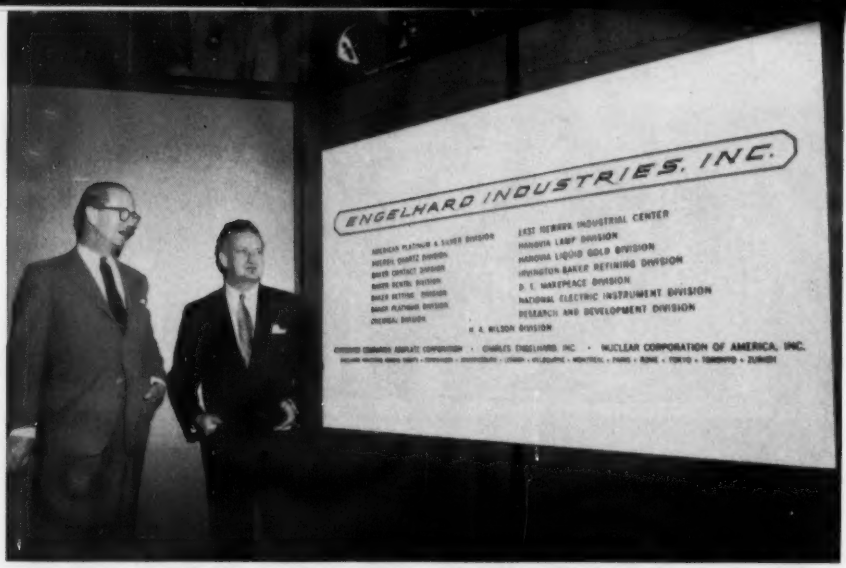

Formation of Engelhard Industries, Inc., a new corporation with annual sales in excess of $200-million, making it one of the 200 largest industrial corporations in the United States, has been announced by Charles W. Engelhard (right), board chairman. Mr. Englehard and Gordon V. Richdale, president of the new company, stand before new divisional breakdown.

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. . . Amazing tight adhesion to 25 different metals as reported by a large electrical manufacturer.
. . . Excellent resistance to Salt Spray, Gasoline, and Solvents . . .

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Synthetics—Vinyls

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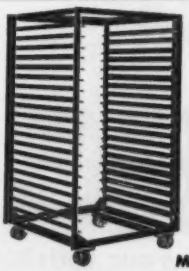

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AND
GREATER OVEN CAPACITY

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MECHANIC ST. & ERIE R.R., PORT JERVIS, N. Y.

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Formation of a new corporation with annual sales in excess of $200-million—the world's largest fabricator of precious metals and one of the 200 largest industrial companies in the United States——has been announced by Charles W. Engelhard, New Jersey industrialist.

Named **Engelhard Industries, Inc.,** it was formed by a consolidation of nine American companies in the precious metals and precision-manufacturing fields, some of them over 50 years old. Three other domestic companies and twelve foreign corporations also are controlled by the same interests, it was disclosed.

Charles W. Engelhard is chairman of the board of the new company. The president is **Gordon V. Richdale,** a financial associate of Mr. Engelhard, a former official of the Bank of England and a former South African gold - mining executive.

The consolidation was announced at a banquet at the Waldorf-Astoria, New York. The ceremonies included an hour-long show on the company's activities and an industrial exhibition of its products.

Largest of the firms consolidated into Engelhard Industries, Inc., is Baker & Co., Inc. It's main business has been the refining and fabrication of platinum. Another is the 50-year-old Hanovia Chemical & Mfg. Co., producer of liquid precious metals for the ceramics industry and of gas-discharge lamps.

The other consolidated companies are The American Platinum Works, refiner and worker of silver; Amersil Co., manufacturer of fused quartz; East Newark Industrial Center, Inc., manager of industrial property; Irvington Smelting & Refining Works; D. E. Makepeace Co., producer of atomic-reactor components and

HOLLOW CONE
in complete choice of spray patterns and capacities
FLAT SPRAY
CONTROLLED-FLOW*
SPRAY NOZZLES
*exact control of pattern, impact, volume and distribution for any liquid at any pressure.
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precious-metal materials; National Electric Instrument Co., manufacturer of industrial and medical instruments; and The H. A. Wilson Co., producer of thermostatic materials, electrical contacts, laminated metals, and special alloys.

Described as "associated domestic companies" were Azoplate Corp.; and Charles Engelhard, Inc.; and Nuclear Corp. of America.

In a brief talk on the company's future, Mr. Richdale announced that Englehard is building a new research laboratory in Newark, and has just completed a plant at Plainville, Mass., for the manufacture of atomic-reactor components.

★ ★ ★

Tom Todd, Los Angeles district sales manager, has received a first place award at the annual district sales managers conference of the J. B. Ford Division of **Wyandotte Chemicals Corporation** at The Greenbrier, White Sulphur Springs, West Virginia. On behalf of the California district sales-service force, Mr. Todd was awarded a certificate for achieving

Tom Todd, Wyandotte Chemicals' Los Angeles district sales manager (left) receives award from P. N. Burkard, department manager.

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Temperature Control Problems

The Model T-34 immersion-type thermostat is effective in

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solution within its temperature range (70°-210°F.). The power element is machined from virgin teflon.

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- **COB MEAL (Tumbling)**

Use In Blasting, Tumbling Machine To Remove Burrs, Plastic Flash; Molding Or Core Sand. Will Replace Steel Shot At Much Lower Cost.

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Metal Degreaser Fluid

. . . Indispensable to prepare a product for a finished FLAWLESS surface.

USED COLD - SAFE!

Approved by Underwriters' Laboratories, Inc.

Order a trial gallon at drum price—NOW—F.O.B. our Factory

BARCO CHEMICAL PRODUCTS CO.

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first place in selling the company's Industrial and Aircraft Department products. This presentation was made by **P. N. Burkard**, manager of the department.

★ ★ ★

There is a bit of **Norton Company** now sailing through space.

The leading surfaces of the satellite "Explorer" are partially covered with an aluminum oxide coating called Rokide "A." Scientists at Jet Propulsion Laboratory, California Institute of Technology, have used this coating to assist in controlling the temperature of the instrumentation inside the satellite. It was sprayed on in stripes along the outside of the instrument vehicle from the nose cone down to the fourth-stage rocket motor section.

★ ★ ★

Oakite Products, Inc., will demonstrate the Oakite CrysCoat Process for phosphatizing and Oakite ChromiCoat for conversion coating of aluminum at the ASTE Tool Show in Philadelphia, May 1 through 8, in Booth 641.

Metal panels will be processed through a simulated production line to show the simplicity of application and the effectiveness of the coating. The company will also demonstrate Oakite Rustripper, the alkaline rust, oil and paint remover; Oakite Stripper SA for the removal of epoxy resin finishes; and Oakite Composition No. 3, a barrel burnishing compound.

Martin F. Maher, manager of Oakite's metal industries division, will be in charge of the booth. He will be assisted by **Elmo F. Connolly**, Middle Atlantic division manager, and technical service representatives **C. S. Anderson, W. Beckhardt, W. G.**

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Size: 30" x 36" or engineered to your specifications. Barrels lined with kiln-dried and glued maple. Child's play to operate. Economical on space as motors are individually mounted overhead—double decked or single. Tumbling supplies available also.
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RICHMOND HILL 18, N.Y.
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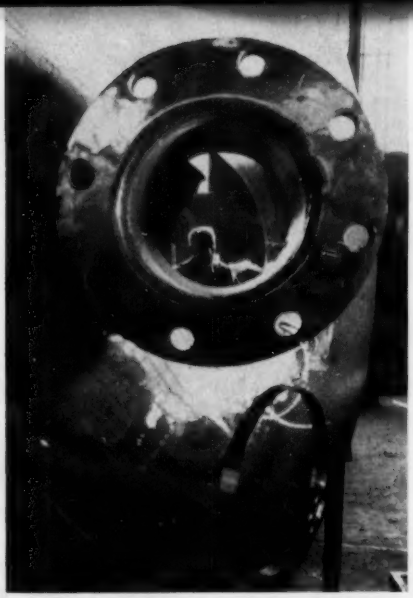
Boaeuf, H. P. Jacques, G. D. Evens, B. D. Clark, J. S. Todd, R. B. Lose, B. F. Fay, H. Frohwitter, and J. M. Hite.

★ ★ ★

Sarco Co., Inc., New York manufacturer of steam traps, temperature regulators, and heating specialties, has been granted U. S. letters patent No. 2,817,353 for its Thermo-Dynamic steam trap. This patent provides for a trap for high- and low-pressure steam systems for the purpose of evacuating "condensation and air from the systems in an entirely automatic manner" without leakage or loss of steam through bleeder ducts or orifices during the time the seating member is seated; and in which "the seating of the sealing member effects a positive and complete seal."

Thermo-Dynamic Steam Trap

Sarco Thermo-Dynamic steam traps, presently available for all steam pressures from 10-600 p.s.i., have been manufactured for several years.



This sneaky peek up the drain of a huge 6-foot diameter steel storage tank indicates what sometimes takes place in meeting atomic energy requirements. Workers inside this 28-foot long tank at Wagner Brothers Equipment Division, Detroit, are applying a special coating to the vessel's inside. The lining (unplasticized P.V.C. laminated to Vyflex) protects tank against acids it will contain after installation of the Bettis site of Westinghouse's Atomic Energy Division.

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from wash thinners, spoiled lacquers, degreasing machine sludge, etc.

Solvents recovered by the Lofgren Process. Each customer's shipment, whether one drum or a carload, receives proper and separate treatment. *Write to:*

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"I have practically taken over all the plating in the shop since Sept. 1957 after having completed a little over half of your lessons. The best part though is a $25 a week raise even during the present recession. Thanks!" writes plater Ed Osborne. The way to get ahead in good times or bad is to know more. Write Dr. Joseph B. Kushner, Electroplating School, 115 Broad St., Stroudsburg 14F, Pa.

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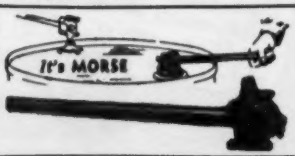
Instantly loosens, tightens 95% all plugs or bungs in steel drums. Has 16" extra-strong steel tubing handle. Wgt. only 2 lbs. Order 1 or more today!



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Lea-Michigan, Inc., subsidiary of **The Lea Mfg. Co.**, has purchased all of the inventory, good will and trademarks of the **Industrial Lubricants Co., Inc.** Lea-Michigan plans to continue the manufacture and sale of Grainlock cements and Drawco drawing compounds through the Industrial Lubricants Div. of Lea-Michigan, Inc.

As soon as is practical, Lea-Michigan will move its office from present quarters on Stansbury Ave., Detroit to 14459 Wildemere, Detroit, but until further notice, the company will continue to operate both manufacturing plants. There will be no change in personnel in the Industrial Lubricants Div.

★ ★ ★

Demonstrations of the **Oakite** CrysCoat Process for phosphatizing and of Oakite ChromiCoat for conversion coating of aluminum will be featured in Oakite's Booth No. 625 at the Southwestern Metal Show in Dallas, May 12 through 16.

Simulated production lines will be set up to show the stages in the conversion coating of metal panels. Other demonstrations will show rust removal by Oakite Rustripper, the alkaline chelating detergent; Oakite Stripper SA for epoxy resin fin- the removal of epoxy resin finishes; and barrel burnishing with Oakite alkaline and acidic materials.

Truce C. Zimmerman, Southwestern division manager, will be in charge of the booth. He will be assisted by technical service representatives **V. Coulson, H. T. Hancock, J. B. Watts, E. Lacy, J. P. Paschall,** and **B. Fortin.**

★ ★ ★

Donald R. Meserve, product manager of organic coatings at **Metal &**

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Thermit Corporation has been elected chairman of the Vinyl Dispersion Division of the Society of the Plastics Industry, Inc.

The group, composed principally of formulators and manufacturers of vinyl dispersions is currently working with the National Bureau of Standards and the American Society for Testing Materials to develop standard test procedures used in determining the quality and characteristics of such dispersions. At the same time, it has under way a program to make statistical data available to users and potential users of dispersions.

NEW POSITIONS

Charles A. DuBois and **Louis Lerner** have been elected president and executive vice-president, respectively, at a meeting of the board of directors of the **DuBois Co., Inc.**, following the death of the company's founder, T. V. DuBois.

The company is a manufacturer of cleaning compounds for institutions and industry.

At the same directors meeting, other officers elected were: **Ateo Gulino, C. C. Hargadine, Samuel J. Miller,** and **A. Howard Mount,** divisional vice-presidents; **Paul F. Goebel,** secretary-treasurer; and **George H. Scheper,** assistant secretary and assistant treasurer.

★ ★ ★

Three management changes in the Chemical Sales Division of **Shell Chemical Corporation** have been announced by G. W. Huldrum, Jr. division manager.

Thomas F. Mika, assistant to

Charles A. DuBois

Louis Lerner

Thomas F. Mika

Wm. A. McCormick

GOOD BYE to PIPE COILS

Old-style pipe coils are now obsolete for phosphating, degreasing, plating, cleaning, drying, etc. The Dean Thermo-Panel Coil TAKES THE PLACE of pipe coils. Ask for complete data and prices.

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sales development manager, has been named assistant to the sales manager, New York.

William A. McCormick, district manager, St. Louis, has been named assistant to the sales development manager, New York.

John R. Brady, Jr., has been named district manager, St. Louis.

John R. Brady, Jr.

T. P. Malinowski

The appointment of **Theodore P. Malinowski** as an assistant director of product development in **Atlas Powder Company's** Chemicals Division has been announced by F. Faxon Ogden, director of product development.

★ ★ ★

R. D. Bradford, vice president of **American Smelting and Refining Company,** has announced several changes in the sales and operating personnel of the company's **Federated Metals Division.**

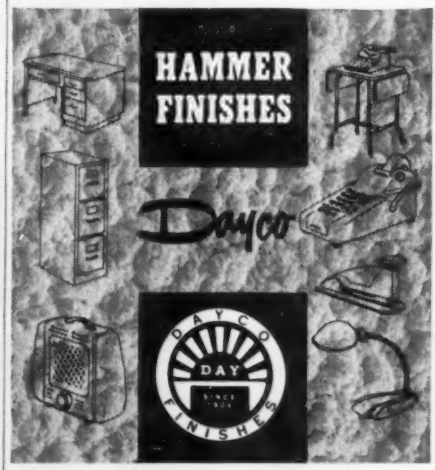
Aubrey M. Callis has been appointed general sales manager, replacing **Edgar L. Newhouse III.**

Mr. Newhouse, who was born in Salt Lake City, has been named Washington, D. C., representative of American Smelting and Refining Co.

C. J. Williamson, who has been Washington, D. C., representative, will become a consultant for Federated Metals.

John L. Griffith will become sales manager of Federated Metals' Eastern Division.

ADD SALES APPEAL



For uniformity of pattern, depth of gloss, toughness, chip resistance; all features that help *make sales,* specify Dayco Hammer Finishes—baking or air dry. Backed by more than half a century of experience in producing fine production finishes, Dayco finishes have a quality and performance reputation you can depend upon.

We have or will produce for you, the special finishes your production calls for.

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E. J. Baker, manager of the Rochester, New York, Federated Sales Office, will replace **Robert A. Colton** as assistant sales manager of the Eastern Division.

J. L. Kammermeyer will become general sales manager of the new Central Aluminum Department, leaving his post as manager of the Houston Plant. R. A. Colton will replace Mr. Kammermeyer at Houston.

The appointment of **John Baur** as director of engineering and research for the **Binks Manufacturing Company,** Chicago, has been announced by Burke B. Roche, president of the company.

The Directorship is a newly established position at Binks. It was created to aid in coordinating the work of the company's various research and engineering divisions.

H. F. Martin

Aubrey M. Callis

John Baur

Dr. Arnold P. Howe

Frederick Gumm Chemical Co., Inc., Kearny, N. J., has announced the appointment of **Howard F. Martin** as sales manager.

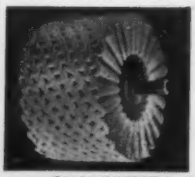
★ ★ ★

A. J. Mackan has been appointed Cleveland district sales manager for **Federated Metals Division of American Smelting & Refining Co.**

Michigan Chrome and Chemical Company has announced the appointment of **Dr. Arnold P. Howe** to the newly created post of assistant to the president. Dr. Howe joined Michigan Chrome and Chemical Company over a year ago and has concentrated on product development, facility expansion and departmental organization in the Chemical Division.

Dr. Howe's responsibilities include

Buff Cooler, Faster with 45° Spoke Buffs



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Sulphur Products Co., Inc.

McKeon Bldg., 621 W. Pittsburgh St., Greensburg, Pa.

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supervision of laboratory and manufacturing functions in the Chemical Division. This involves the development of new products, processes and facilities.

★ ★ ★

The Research and Development Department of **Norton Company** has been reorganized to correspond with the company's divisional reorganization announced a year ago. Four major sections will now handle abrasives, refractories, basic exploratory research and laboratory services.

Dr. Howell H. Milligan, formerly assistant director of research and development has been appointed associate director of research and development.

Dr. Neil N. Ault has been appointed assistant director of research and development in charge of the refractory section.

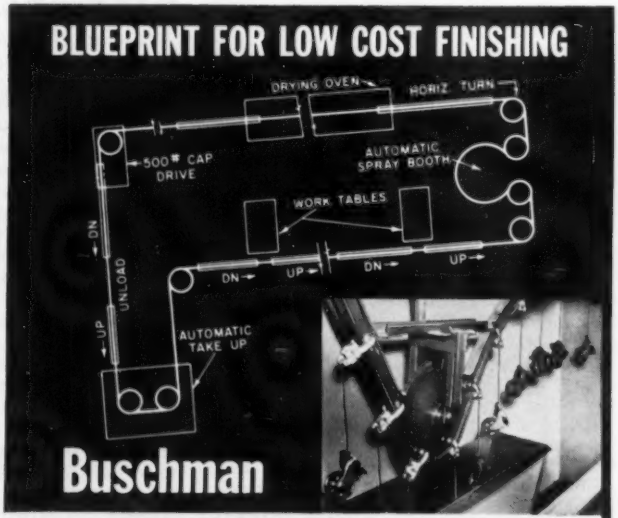
Loring Coes, Jr., continues as assistant director of research and development but will now be in charge of the Exploratory Research Section.

Drs. Herbert F. G. Ueltz, Guy Ervin, Jr., and **Leo P. Tarasov** have been appointed research associates, reporting to Mr. Coes.

Dr. Newman W. Thibault continues as assistant director of research and development, a post he has held since 1953, but will now be in charge of the Abrasive Section.

C. Herbert Quick will continue as assistant to the director of research and development and will now be in charge of the Service Section.

The Service Section has likewise been divided into units. **Raymond M. Rebert** continues as chief chemist in charge of the Analytical Unit. **Richard E. Englund** is appointed chief in



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All types of operations are completed at lower cost . . . in less floor space . . . with Bush-Lock Cable Conveyors custom-built *on the spot* from the Buschman package of standard stock components.

Buschman specialists will cooperate with washer or oven manufacturers making a survey of your plant.

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A. E. S. 45TH ANNUAL CONVENTION,
Sheraton-Gibson Hotel, Cincinnati, Ohio, May 18-22, 1958
"Progress Through Education"

charge of the Grinding Unit, **Charles W. H. Barnett** is appointed chief in charge of the Microscopic Unit and **L. Peter Jensen** has been named chief machinist in charge of the Machine Shop Unit.

★ ★ ★

The Barrett Varnish Co., of Cicero, Illinois, has announced the appointment of **Bernard D. Lundy** as sales manager of industrial sales. Mr. Lundy has been a sales representative for Barrett Varnish Co. for the last four years and has been associated technically with industrial finishing for twenty-eight years.

★ ★ ★

George A. DeCario, for the past two years a field service engineer, has been appointed district manager of the northern Ohio area, which incudes western Pennsylvania, for **Wagner Brothers, Inc.**, Detroit.

Mr. DeCario will make Cleveland his headquarters.

SOCIETIES

T. R. Boggess

At a special installation meeting held on March 28 at the Hotel Patrick Henry, Roanoke, Virginia, the **Blue Ridge Branch** received a charter as the 58th branch of the **American Electroplaters' Society. Francis T. Eddy,** A. E. S. president presented the charter which was accepted by **T. R. Boggess,** branch president. Other officers of the new branch are: **Dr. Nelson F. Murphy,** 1st vice president; **Bruce E. Wallace,** 2nd vice president; **Carl T. Witherspoon, Jr.,** secretary-treasurer; **Paul D. Callahan** librarian.

MEETINGS

The 4th Annual Empire State Regional Meeting of the **American Electroplaters' Society** will be held on Saturday, April 19, at the Rochester-Manger Hotel, Rochester, New York.

Frank O. Beuckman, Eastman Kodak Company development engineer and president of the Rochester Branch, is conference chairman. The Educational Program, scheduled for Saturday afternoon, consists of two sessions, one on Organic Finishing, and one on Plating.

Ezra A. Blount, editor of PRODUCTS FINISHING and co-chairman of the 45th Annual A. E. S. Convention Committee, will serve as chairman of the Organic Finishing Session. Papers to be presented include: "Pretreatment of Metals for Organic Finishing," by **G. A. Lux,** technical information director, Oakite Products, Inc., "Equipment for Pretreatment and Painting," by a DeVilbiss Company representative; and a movie on color in finishes together with a discussion by **Paul O. Blackmore,** Interchemical Corporation.

F. O. Beuckman

William Tucker, Eastman Kodak Company, will serve as chairman of the Plating Session. Papers to be

William Tucker

Ezra A. Blount

presented include: "Performance of Multiple Nickel Coatings," by **Clarence Sample,** International Nickel Co.; "Practical Applications of the Kanigen Process," by **Paul Talmay,** Kanigen Div., General American Transportation Corp.; "Choice and Specification of Materials for the Plating Run," by **Morris Tardiff,** Hanson-Van Winkle-Munning Company.

A banquet and dance is scheduled for Saturday evening,

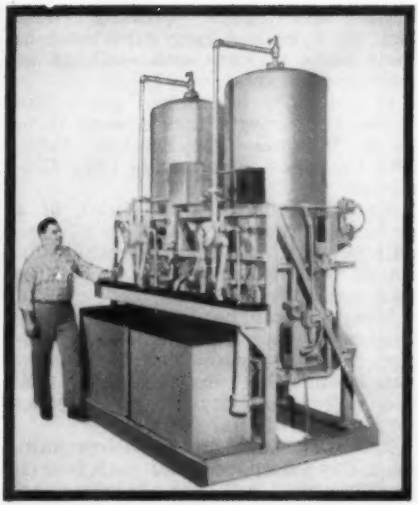
★ ★ ★

Late flashes from the **45th Annual Convention, American Electroplaters' Society,** to be held May 18-22 at the Sheraton-Gibson Hotel, Cincinnati.

1958 A.E.S. Convention to Have "Problem" Session. Do you have a problem in finishing? If your answer is "yes" the 1958 A.E.S. Convention is a "must" for you.

An innovation at this year's A.E.S. Convention will be a "stump-the-experts" panel discussion. During this session, scheduled for **Thursday, May 22,** qualified experts will answer questions about many phases of finishing.

The panel will be composed of specialists on Preparation of Metals for Plating; Corrosion and its Prevention; Conversion Coatings; Plating for Military Requirements; Anodizing, Plating on Aluminum; Decorative Plating; Job Shop, Specialty



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Plating and Organic Finishing. These men all have had long experience in their fields and are well qualified to answer questions.

If you have a problem you'd like to see the experts tackle, send it to **R. L. Winston,** The Electric Auto-Lite Company, Sharonville Div., Cincinnati 41, Ohio.

And even if you don't think of a problem right now, come to Cincinnati in May. Listening to other finishers' problems may give you a clue to a money-saving idea.

Member branches of the **Tri-State Region, American Electroplaters' Society** will cooperate with the **Cincinnati Branch,** host for the **1958 A.E.S. Convention,** by providing assistants for the educational sessions.

L. A. Critchfield, coordination chairman, has announced that each branch in the region will provide three assistants who are scheduled to serve during the educational sessions as follows: Monday, **Indianapolis Branch;** Tuesday, **Columbus Branch;** Wednesday, **Dayton and Cincinnati Branches;** Thursday, **Louisville Branch.**

Late arrivals at the convention can save time by taking a helicopter from the Greater Cincinnati Airport to downtown Cincinnati. The helicopter is operated by Ohio Valley Airways.

The six-minute ride gives the conventioneer a good view of the Ohio River city and drops him off about a block from the Sheraton-Gibson, the headquarters hotel.

NECROLOGY

Fred A. Aston, Sr., retired sales manager for national accounts for **Oakite Products, Inc.,** died on March 6, at his home in Lauderdale-by-the-Sea, Florida. He would have been 80 years old on April 28.

Mr. Aston, a native of London, England, joined Oakite in 1913, when the company was four years old. He served for many years as the company's representative in Detroit, and, when appointed sales manager for national accounts, in 1940, kept his headquarters there. He retired in December, 1955.

MEETINGS of INTEREST to FINISHERS

Apr. 12. Annual Meeting, Mississippi Valley Branch A.E. S., Johnny Hartman's Restaurant, Davenport, Iowa.

Apr. 12. Annual Banquet, Baltimore-Washington Branch, A.E.S., Park Plaza Hotel, Baltimore, Md.

Apr. 12. 19th Annual New England Regional Meeting and Banquet, A.E.S., Hotel Statler, Hartford, Conn.

Apr. 14-15. Annual Spring Technical Conference & Exhibition, International Association of Electrotypers & Stereotypers, Inc., Carter Hotel, Cleveland, Ohio.

Apr. 19. 4th Empire State Regional Meeting, Seneca Hotel, Rochester, New York.

Apr. 26. Annual Banquet and Educational Session, Milwaukee Branch, A.E.S., Hotel Schroeder, Milwaukee, Wisconsin.

Apr. 27-May 1. Spring Meeting, The Electrochemical Society, Statler Hotel, New York, N. Y.

May 3. Annual Educational Session and Banquet, Boston Branch, A.E.S., Hotel Statler, Boston, Mass.

May 4. Annual Meeting, Toronto Branch, A.E.S., Sheraton Brock Hotel, Niagara Falls, Ontario.

May 5-7. 13th Purdue Industrial Waste Conference, Purdue Memorial Union Building, Purdue University, West Lafayette, Indiana.

May 17. Annual Banquet, St. Louis Branch, A.E.S., Chase Hotel, St. Louis, Missouri.

June 14. 40th Annual Banquet, Masters Electro-Plating Association of New York, Hotel Astor, New York, New York.

June 22-27. Annual Meeting and Exhibit, American Society for Testing Materials, Hotel Statler, Boston, Mass.

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45th Annual Convention
American Electroplaters' Society
May 18-22, Cincinnati, Ohio

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"That one's catsup . . ."

APRIL ADVERTISERS' INDEX

Allied Research Products, Inc. 20, 21
Almco, Queen Products, Inc. 115
Alvey-Ferguson Co. 87
American Chemical Paint Co. 67
American Metal Climax, Inc. 13
Apex Alkali Products Co. 78
Atlantic Compound Co. 73

Baird Machine Co. 2
Barco Chemical Products Co. 148
Barnstead Still & Demineralizer Co. 157
Bendix Aviation Corp. 94
Better Finishes & Coatings, Inc. 16, 17
Bond Chemical Products Co. 102
Brady Co., W. H. 6
Buschman Co., E. W. 155

Carl Mayer Corp. 146
Cellusuede Products, Inc. 90
Chainveyor Corp. 97
Chicago Rubber Co. 117
Cincinnati Cleaning & Finishing Mchry. Co. 103
Cincinnati Electrical Tool Co. 141
Clair Mfg. Co., Inc. 84
Clinton Co. 63
Cohn Mfg. Co., Inc., Sigmund 110
Cowles Chemical Co. 24

David-Ludwig Co. 92
Day & Co., James B. 153
Dean Thermo-Panel Coil Div., Dean Products, Inc. 152
Despatch Oven Co. 9
DeVilbiss Co. 74, 75
DuBois Co., Inc. 11
Du Pont de Nemours & Co., Inc., E. I. 118, 119
Duralac Chemical Corp. 61

Egyptian Lacquer Mfg. Co. 10
Electro-Glo Co. 100
Elkhart Controls Co. 148
Enthone, Inc. 4

Formax Mfg. Corp. 151

Gardner Laboratory, Inc. 152
General Electric Co. 80, 81
Glo-Quartz Electric Heater Co. 12
Grav-I-Flo Corp. 143
Guaranteed Buff Co., Inc. 154

Hammond Mchry. Builders, Inc. 7
Harshaw Chemical Co. 111
Hartford Steel Ball Co., Inc. 98
Hooker Electrochemical Co. 101
Hull & Co., Inc., R. O. 139

Ionic Electrostatic Corp. .....Third Cover

Koch Sons, Inc., Geo. 22
Kocour Co. 82
Kramer Co., H. W. 149
Kushner Electroplating School 150

Lanly Co. 123
Lasalco, Inc. 39
Lea Mfg. Co. .....Second Cover

Magnus Chemical Co., Inc. 135
Magnuson Products Corp. 114
Mahon Co., R. C. 106, 107
Manpro Corp. 120
Metal & Thermit Corp. ..88, 89, Fourth Cover
Michigan Chrome & Chemical Co. 3
Minnesota Mining & Mfg. Co. 83
Morse Mfg. Co., Inc. 150

NRC Equipment Corp. 95
Nikolas & Co., Inc., G. J. 136
Nordson Corp. 14

Oakite Products, Inc. 1
Oronite Chemical Co. 15

Packer Machine Co. 18
Park Chemical Co. 128
Parker Rust Proof Co. 140
Pennsalt Chemicals Corp. 144, 145
Pittsburgh Plate Glass Co., Industrial Finishes Div. 112, 113
Products Finishing 125

Ransburg Electro-Coating Corp. 19
Ransohoff, Inc. 93
Rockwell Co., W. S. 116
Roto-Finish Co. 91

Sarco Co., Inc. 121
Sel-Rex Corp. 137
Sethco Mfg. Co. 6
Shell Chemical Corp. 85
Shuford Mills, Inc. 127
Solvents Recovery Service, Inc. 150
Spee-Flo Corp. 99
Spraying Systems Co. 147
Stanley Chemical Co. 104, 105
Stevens, Inc., Frederic B. 8
Stewart-Warner Corp. 79
Sulphur Products Co. 154

Tenax Finishing Products Co. 146
Ti-Co Industries, Inc. 148
Tousey Varnish Co. 23
True Brite Chemical Products Co. 126

Udylite Corp. 48, 49
Unit Process Assemblies, Inc. 122

Varnish Products Co. 124

Wagner Bros., Inc. 77
Wilder Mfg. Co., Inc. 146
Worklon, Inc. 86
Wyandotte Chemicals Corp. 108, 109

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